FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Maine Poultrymen Name Coordinator For Feed Plan

AUGUSTA, MAINE — Plans for water transportation of feed grains into Maine for consumption by the Maine broiler industry will be coordinated by Dr. Julius Hendel, Minneapolis consultant, it was announced by Maine Poultry Associates, Inc.

The association said concrete proposals are now being discussed with various transportation, grain and milling interests, and Dr. Hendel's services are to be used in producing a coordinated and practical proposal for the various operations involved.

The association said the group has been conducting an intensive study of the various aspects of such a program for the past year. It said that results of the various surveys definitely demonstrate that there are substantial savings to be had through the use of water transportation of feed ingredients from the producing areas.

Maine's broiler industry is presently raising about 60 million birds a year and is consuming mixed feed on an annual basis of well over 300,000 tons. This volume and the proximity of the industry to deep-water ports make the water movement feasible.

(Turn to MAINE, page 119)

Feed Shipping by Water to Delmarva Area Suggested

WILMINGTON, DEL.—Lower prices of feed supplies in Delmarva might result from a plan to makes Lewes, Del., a major depot for midwest feeds shipped through the St. Lawrence Seaway to the East Coast, it was reported recently.

Negotiations on the plan have started, it was announced by U.S. Sen. John J. Williams (R., Del.).

"If the route and facilities can be established—and I believe they can —the Delmarva Peninsula's broiler industry will benefit immediately because of the smaller price it will have to pay for feed," Sen. Williams said.

He said he has already conferred with the Interstate Commerce Commission and the Maritime Commission about the bulk transportation of feed products from the Midwest.

He pointed out that the case for a large loading and unloading center at Lewes is made strong by the fact that there is a deep water channel available.

"There is an excellent chance," said Sen. Williams, "that the opening of the St. Lawrence Seaway can be used to advantage by the poultry industry in Delaware and on the Delmarva Peninsula. The lower freight rates would restore the peninsula's competitive position."

He explained that the southeastern broiler area, including Georgia and Tennessee, is obtaining lower freight rates on soybean meal and

(Turn to DELMARVA, page 119)

FEEDSTUFFS *Features This Week*

NEW PLANT: A new feed plant in Iowa is described on **page 10**.

INTEGRATION: Extensive interviews with feed men show varied views on how fast integration is developing. See **page 104**.

LINEAR PROGRAMMING: Another in a series of articles on linear programming, dealing with broiler feeds, will be found on **page 32**.

ANTIOXIDANTS: A USDA scientist discusses the use and effects of antioxidants in feeds. **Page 52**.

RUSSIAN AGRICULTURE: Observations on agriculture and feeding in the U.S.S.R. appear on **page 18**.

FEED AND LIVESTOCK PICTURE: Current trends in feeding and feed manufacturing are examined in an article on **page 15**.

— REGULAR FEATURES —

Joe Brooks	38	Worth Looking Into	100
Putting Research to Work	40	Convention Calendar	106
Up or Down	88	Feed Markets in Detail	120

Nutrition Studies Reported at World's Poultry Congress

***EDITOR'S NOTE:** Dr. Robert E. Moreng, head of the poultry department at Colorado State University, Ft. Collins, has reviewed some of the scientific papers presented at the recent World's Poultry Congress in Mexico City. Following are Dr. Moreng's summaries and comments.*

By DR. ROBERT E. MORENG
Colorado State University

MEXICO CITY—The World's Poultry Congress convened in Mexico City with a general opening session addressed by the president of the Mexican Republic on Sept. 21. President Adolfo Ruiz Cortines greeted the delegates and welcomed them to his country. Greetings by Dr. Rupert Coles, president of the World's Poultry Science Assn., as well as Mexico's secretary of agriculture, Gilberto Flores Munoz, marked the opening of the event.

Representatives of 47 nations from various parts of the world combined to make an attendance of approximately 2,000 delegates who presented and discussed 130 scientific papers and presentations. The papers were presented in five different sections—genetics and breeding; nutrition and physiology; diseases and their control; production and development,

(Turn to POULTRY, page 123)

Program Set for Feed Production School, Including Two Days on Bulk

KANSAS CITY — Program plans are all set for the 1958 Feed Production School.

The annual school, sponsored by the Midwest Feed Manufacturers Assn., will be held Nov. 12-14 at the American Royal Bldg. in Kansas City. Several hundred feed men from large and small mills alike are expected to attend.

Bulk Handling

The emphasis at the main school will be on bulk handling, with two days of the program devoted to discussions, demonstrations and presentation of results of a bulk methods research project. The third day will be given over to specialized sessions on liquid handling, pelleting, remodeling and other phases of feed plant operation.

In addition to the main school, there will be a special Small Mill Short Course on Nov. 14, also at the American Royal Bldg. This course, presented concurrently with the specialized sessions of the production school, is planned especially for concentrate mixers, small mills and custom millers. The sessions are open to all production school enrollees; also a person may register for just this one-day short course if he wishes. (See accompanying story on the short course.)

(Turn to SCHOOL, page 119)

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Plans Announced For Small Mill Short Course

KANSAS CITY — Custom millers, concentrate mixers and small mill operators will have their special day at the 1958 Feed Production School in Kansas City. Being held this year in connection with the school is a special Small Mill Short Course.

The short course will be presented on Friday, Nov. 14 — concurrently with the third day's program of the annual production school. The dates for the latter are Nov. 12-14.

(Turn to SMALL MILL, page 119)

50% Increase In Feed Needs By 1975 Seen

Benson Says Feeding Big Factor in Solving U.S. Grain Problem

TEKEMAH, NEB.—The feed business is a pretty competitive business these days, and is likely to continue to be just that. But it is not static business. Another indication of the prospective increase in feed requirements in the years ahead came this week in an address by Ezra Taft Benson, secretary of agriculture. Demand for feed, he said, may be up 50% by 1975.

Speaking at the Nebraska Mechanical Corn Picking Contest, Mr. Benson gave particular attention to the feed grain problem—the problem of surpluses and measures aimed at reducing the surpluses.

"The feed grain problem is difficult," he said. "But it is not impossible to handle. We know what must be done. We need:

(Turn to FEED NEEDS, page 8)

AFMA, Industry Seek Improved Public Relations

By GEORGE L. GATES
Editor of Feedstuffs

CHICAGO—Some 25 feed industry public relations directors swapped ideas with each other, American Feed Manufacturers Assn. officials and representatives of the trade press at a conference held here Oct. 7 under sponsorship of the AFMA.

During the day-long discussion, led by Richard L. Kathe, AFMA director of public relations, the many types of public relations efforts being pursued in the industry were described. Included were programs developed for veterinarians, college administrators, college specialists, county agents and vo-ag teachers, experiment station personnel, rural bankers, press and radio, the general public and legislators.

The conference was planned to serve the double purpose of giving public relations men an opportunity to learn what others are doing and to assist the AFMA in making plans for a public relations program suited to the industry's present-day needs.

I. S. Riggs, Quaker Oats Co. and AFMA board chairman, opened the conference with the comment that the feed industry is more and more realizing the importance of wooing public opinion. "We must continue to make the farmer realize that he's getting more back in his feed than was in the grain when we bought it from him," he said.

W. E. Glennon, AFMA president,

(Turn to AFMA, page 123)

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The Industry's Public

A DAY-LONG CONFERENCE held this week in Chicago brought into sharper focus the feed industry's public relations activities as practiced by the professionals in many companies charged with this important responsibility. The expansion of this type of activity has, of course, been a reflection of the feed industry's growth and awareness of its role in service to agriculture.

It is quite possible, however, that even those who have public relations responsibilities as a full-time job have not been completely aware of the extent of such activities being carried on by others. The opportunity provided by the conference to exchange ideas gave all of those present a good rundown on programs and practices of a large number of feed and allied companies. Thus, the session, sponsored by the American Feed Manufacturers Assn., actually served as a fairly complete survey of what is being done in this line. It was undoubtedly worthwhile for those participating to learn what their counterparts in other companies are accomplishing and attempting to accomplish.

AN IMPRESSIVE AMOUNT of thought and work is going into public relations activities, the conference clearly revealed. When one considers the number of "publics" with which the industry must maintain favorable relationships, it becomes apparent why such diligent effort is needed.

The industry as a whole, as well as individual companies, must not only impress its customers with the service it performs, but it must also do its best to see that proper understanding of its activities is gained by the general public, several categories of college personnel, bankers, veterinarians, legislators, county agents, vo-ag teachers and others.

All of the gentlemen present, to be sure, are well aware of the necessity for efforts needed to maintain the good name of their individual companies among customers and others they attempt to influence. However, the conference probably helped stimulate some fresh thinking about the broader aspects of industry-wide public relations, which many feed companies have made a part of their individual programs.

In the process of developing favorable public attitudes toward particular products or programs, it will be extremely important in the future that public relations activities also reflect favorably on the industry as a whole.

Grass Roots Report

INTEGRATION OF AGRICULTURAL PRODUCTION is examined with a fresh approach in an article by Al P. Nelson, Feedstuffs special writer, appearing on page 104 of this issue. The article is the first of two written by Mr. Nelson after extensive interviews with feed men and farmers in the Midwest.

While a great deal of opinion of economists and other students of agriculture has been reported on this subject, not a great deal of reporting has been done at the level where integration will have its greatest impact.

Mr. Nelson reports, "Whether the market will be supplied mainly by integrated firms or integrated producers remains to be seen. In the area in which this writer traveled, you could find takers for bets on both sides of the fence."

The comments of people interviewed appear to reflect well-considered opinions, because certainly the subject of integration has been a favorite debate topic throughout the agricultural community in the past several months. Heavy stress is placed on the strong feelings of independent and successful farmers in the Midwest.

What Mr. Nelson reports probably will not alter the opinion of most observers that economics will govern the development of integration, rather than other considerations. However, feed men will want to weigh the opinions expressed in this grass roots report while the bets are still being taken.

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

Feed demand was spotty over the nation last week, apparently as a result of fall harvesting and some falling ingredients prices. A pickup in beef cattle feeding was noted in the Midwest, but dairy demand continued slow. Turkey feed demand is tapering off, but hog and pig feeds are moving well and a seasonal increase in egg feeds was noted. Despite its spotty nature, business is considered to be relatively good for this time of the year. The wholesale feedstuff price index dropped 2.6 points to 80.6 this week, compared with 74.1 a year earlier. The feed grain index advanced .7 point to 66.5, as against 66.1 a year earlier. The hog-corn ratio, however, dropped from 16.9 a week earlier to 15.6, almost the same as the 15.5 for this week a year ago. (Ingredient prices in detail on pages 120-122.)

Northwest

Fall farm work, good weather and a buyer reticence caused by falling ingredient prices were all blamed this week by representatives of feed mills for another week of slower, yet good, sales of formula feeds.

Representatives said the sale of dairy feeds, particularly, is slow for what should be expected at this time of the year. An increase in demand for beef fattening rations was noted, however. A stretch of nasty winter-like weather would cure the lack of dairy demand, representatives said.

Turkey volume is continuing to taper off, though it is maintaining a good pace for this time of the year. Broiler feeds were reported to be moving well, and layer rations are picking up, but representatives do not expect a sharp boost in demand until weather forces layers inside.

Hog feeds continue to move in good volume. Demand during the past week has been somewhat off the pace of recent weeks. It is believed that busy feeders are temporarily tiding over the hogs with corn from their fields.

The drop in business has not been sufficient to reduce shifts or running time from its pace of recent weeks, representatives said.

Price lists for the coming week are expected to show some reduced prices. The range quoted by representatives ran from unchanged to down $2.

Southwest

Continuation of the spotty conditions prevailing a week ago was the rule in formula feed markets of the Southwest this week. Some mills reported a slightly better volume of sales than in the previous period, but this was balanced off by others who found business slower. In total, there seemed to be no very definite trend.

Seasonal factors were the ruling influence in the various lines. Turkey feeds were over the peak and tending moderately lower. Shipments of hog feeds were holding up well and there was a fair to good business in egg feeds. Some mills reported a growing interest in cattle feed bookings, but it is yet too early to determine a trend. Some feel that business is starting off better than a year ago in this department.

Mill operations were about the same as the previous week, averaging around five days. Some firms carried over enough unfilled orders from the previous week to keep practically full running time, even though new sales were off. Price cards this week reflected the decline in protein feeds, and most items of substantial protein content were down $1@2; others were unchanged.

Northeast

A better undertone appeared this week and formula feed sales improved a little. Mills stepped up their running time slightly from the previous week.

Dairy feed demand is holding up fairly well for this time of year. A black frost occurred in spots in this area, damaging some crops, but it had little effect on pastures other than to slow them down. There still is a lot of grain on the farms that dairy animals will use before demand really gets rolling.

Egg mashes continued to do well, but broiler feeds dragged because of the depressed market.

With the exception of broilers, end products are bringing a good return. Eggs are strong and milk is higher. In the western New York area egg supplies were barely adequate for extra large and medium sizes.

The ingredient market was fairly firm during the week.

Wheat feeds gave little ground late in the period, but corn edged higher. Oats held steady.

Soybeans were easy, as was hominy and gluten meal. Molasses turned 1¢ lower. Alfalfa meal is beginning to move and prices advanced.

Fish meal continued to be practically unobtainable and meat scraps held steady.

Brewers' grains were unchanged and linseed oil meal held firm.

Bran and middlings backed down under quiet demand.

Running time of formula feed manufacturers averaged 40 hours last week, compared with 36 in the preceding week.

Southeast

Feed business has been reported to be steady this week in the area. Southeastern corn prices have advanced slightly due to recent wet weather over the main producing section and movement has slowed, but with clear cool weather this situation is expected to be improved in the immediate future.

Broiler prices have held at about the 15¢ level f.o.b. farms, and broiler feeds continue to move well. Hog and dairy feeds continue their good movement and cattle feed operations are being extended in many instances beyond early expectations.

Feed mill running time is reported to be good, and it should continue at the present pace or better until cold weather arrives when demand is expected to improve materially. In some areas, such as most of the state of Florida, feeders are experiencing abnormally dry weather and pastures have been damaged to some extent. However, on an over-all picture, pasture is still reported to be in fair condition.

An interesting development this week in the protein markets is buying of cottonseed meal from the Mississippi Valley area by oil mills within the southeastern states for deferred shipment. Tonnage has been considerable and prices f.o.b. shipping points have been on a very firm basis.

There is a considerable underlying demand for relatively large tonnages of ground snap corn, cobs and shucks, along with other carbohydrates and proteins by feeders who apparently are beginning to feel that market lows should be reached in the very near future. Inquiries to feed deal-

(Turn to MARKETS, page 125)

The Case of the Talking PIGS

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Basal Ration	17.8	23.7	1.30	1.53	.85
Basal Ration Containing 20% Sugar	18.6	27.5	1.72	1.75	.98
Basal Ration Containing 1/20% SUCRO FLAVOR	17.3	27.1	1.45	1.49	.97
Basal Ration Containing 1/10% SUCRO FLAVOR	17.9	31.1	1.67	1.50	1.11

Conclusions from feeding experiment report by Laboratory of Vitamin Technology are as follows:

"Under the conditions of this experiment, 3-week old pigs fed basal ration with sugar or Sucro-Flavor and raised on concrete showed better weight gains than those fed basal ration alone. Feed efficiency on Sucro Flavor was equal to that on basal alone, and better than that on sugar. Therefore, in one ton of pig starter ration, one or two pounds of Sucro-Flavor was found to be equivalent to or better than 400 pounds of cane sugar with respect to weight gain and feed efficiency."

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Final Decision Delayed on Oil Donation Plan

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Disagreement within the administration has delayed final top-side decision on the edible oil donation program. It is now waiting final decision at the White House.

The donation program is seen by some observers as a stabilizing influence on the soybean market, and U.S. Department of Agriculture officials say that the soybean meal from the additional crush of beans will not be a price-breaking factor. (Feedstuffs, Sept. 27, page 1.)

At USDA those in favor of the oil donation program, which could amount to as much as 500 million pounds for domestic and foreign aid, outnumber the opposition. This minority opposition, however, represents some influential persons in the USDA. But the fact that it has gone to the White House with substantial numerical backing might indicate a favorable recommendation from USDA.

Cost Factor

Another factor holding up approval of the program is said to come from the Bureau of the Budget, which scrutinizes our new cash disbursements with an extremely critical eye. In the case of an oil donation program, USDA would be required to process soybean oil into end products such as margarine, shortening and cooking oil, thereby accumulating additional costs. Such additional dollar spending on the part of Commodity Credit Corp. is the item at which the Budget Bureau criticism is directed.

The other side of the coin is a political one. Sen. Hubert Humphrey (D., Minn.) vigorously pushed through the last session of Congress his amendment urging the donation of edible fats for foreign and domestic relief programs. In that position he has had indirectly strong backing from the major relief organizations, who on the domestic side set forth the contention that distribution of wheat flour and cornmeal is somewhat short of reality since they cannot be effectively used with shortening or fats.

The equation now facing the White House is one of saving dollars or approving the oil donation program, whereby they can effectively prevent further public criticism of the ad-

(Turn to OIL PLAN, page 122)

Northwest Feed Group Will Meet Oct. 20

MINNEAPOLIS — L. M. (Red) Henderson will give an address on his observations of agriculture in Russia and other European countries at the next meeting of the Northwest Feed Manufacturers Assn. Oct. 20, Calhoun Beach Hotel, Minneapolis. The social hour starts at 5:30 p.m., and the dinner at 7.

Mr. Henderson is vice president of Doughboy Industries, Inc., New Richmond, Wis., in the formula feed division.

For five weeks this summer Mr. Henderson was a representative of the People to People program as approved by the U.S State Department. He was a member of a group which observed farm operations, including collective and state farms, in Russia. His tour also took him to Ireland, Scotland, England, Holland, Belgium, France, Denmark, Sweden, East and West Germany, and Lithuania.

Mr. Henderson's talk will be illustrated with some 150 color slides.

Tennessee Poultry, Egg Federation Will Meet In Nashville Oct. 19-20

NASHVILLE, TENN. — The Tennessee Poultry Federation will sponsor a special program, Agricultural Spotlight, Oct. 19-20, along with its annual convention in Nashville.

Registration begins at the Noel Hotel in Nashville at 5:30 p.m., Oct. 19.

The agenda for Oct. 20 includes the following subjects and speakers: Dr. C. K. Laurent, Marbut Milling Co., Augusta, Ga., will "Guesstimate the Future"; Dr. J. H. Hare, Chas. Pfizer & Co., Inc., will discuss "More Efficient — Tomorrow"; Harold E. Ford, Southeastern Poultry & Egg Assn., Atlanta, Ga., "How Inspection Affects Everyone"; W. B. King, Tennessee Egg Co., Chattanooga, "Contract Egg Farming Problems," and Dr. H. V. Shirley, Jr., poultry department, University of Tennessee, "Control of Poultry Environment."

Gordon Sawyer, National Broiler Council, and Curtis Collier, Poultry & Egg National Board, will present the latest in the fields of promotion when they discuss the consumption of broilers and eggs. Dr. J. K. Bletner, poultry department, University of Tennessee, will discuss feeding mash, pellets, cracked pellets and grit, and the best grade of grain to use.

Dr. E. O. Goff, head of the poultry department, University of Tennessee, and secretary of the federation, has announced that reservations should be made through the Noel Hotel.

Oilseed Meal Futures Show Irregular Trend

MEMPHIS — Oilseed meal futures were irregular during the past week on the Memphis Board of Trade.

Soybean oil meal dropped substantially, while cottonseed oil meal made the only gains, which were fractional.

The continued heavy harvest of soybeans and strength in soybean oil brought lower oil meal prices. On Oct. 8, with oil showing weakness, the meal market rallied.

Unrestricted soybean oil meal closed Oct. 8 50¢ to $1.75 ton lower than on Oct. 1. Eastern Trunk Line soybean oil meal 25¢ to $2.25 lower, bulk solvent cottonseed oil meal 25¢ to 50¢ higher, and sacked old process cottonseed oil meal was unchanged.

Trading for the period was slow, amounting to 2,300 tons of unrestricted soybean oil meal and 1,200 tons of bulk solvent cottonseed oil meal.

Spain Not Likely to Request U.S. Eggs

WASHINGTON—In regard to reports that Spain will obtain a procurement program from the U.S. Department of Agriculture for eggs from the U.S., officials at the USDA in a position to know say there has been no such request from Spain up to this time.

They added that they have no reason to anticipate any initiative from the Spanish government for this commodity.

Shuford Moves Offices

CHICAGO—The J. C. Shuford Co. will move its offices from 216 W. Kinzie St., Chicago, to 751 Howard St., Evanston, Ill., according to an announcement by Mrs. Mary Craig, president. The move will afford larger and more convenient quarters, it was said.

The Shuford company is a distributor of imported baler and binder twines, and domestic baling wire and rope. It has recently added a line of grain bins, corn cribs, gates, wagon boxes and other items for farm use.

BROILERS 15-16c LB.

FAYETTEVILLE, ARK. — Midweek reports from principal broiler areas indicated that demand was mostly slow to fair, with the market reported weak to steady. Prices were mostly around 15 to 16¢ lb. at the farm. Arkansas reported prices at 15¢; Delmarva, mostly 15½ to 16¢, with the market weak; Georgia, 15 to 16¢, mostly 15¢, with demand slow to fair; Texas, 15½ to 16¢; Mississippi, 15 to 16¢, mostly 15¢; Alabama, mostly 15¢.

Broiler Price Shows Upturn in Delmarva, Averages 16.4c

SALISBURY, MD.—Broiler prices in Delmarva showed considerable improvement last week as the price rose to an average of 16.4¢ lb., compared to 15.5¢ the week before.

The improved prices came in spite of 1% more birds going to market than the previous week. Last week's 4,320,000 birds sold in Delmarva were 22% more than the number sold during the same week last year.

Nationwide last week, hatcheries set 35,768,000 eggs. This was 3% less than the previous week, but 11% more than the corresponding week a year ago. Declines in the number of eggs set from the previous week were reported in 18 of the 22 states.

Broiler growers in the 22 states started 26,506,000 broiler chicks. This was 7% more than the previous week and also 7% above the corresponding week a year ago.

Broiler growers in Delmarva felt quite a pinch in profits during September. The average price paid for broilers during the month was 16¢ lb., compared to 18¢ last year. This was a decrease of 11%. Feed prices this September averaged $5.05 cwt. compared to $4.72 last September, an increase of 7%. The price of broiler chicks for the two months remained the same at 12.5¢ each.

Grace Reduces Price For Urea Compound

MEMPHIS—A reduction of $2 ton in the price of Grace micro prilled urea feed compound, a product of the Grace Chemical Division of W. R. Grace & Co., Memphis, has been announced.

Details of the price reduction include a $2 ton reduction in both the delivered and f.o.b. plant prices of the product; a reduction in the minimum quantities for customer truck pickup at the plant, from 10 tons to five tons; and elimination of freight allowances on material picked up by customer truck at the plant.

The new price is $103 ton, f.o.b. plant at Woodstock, Tenn., in 80-lb. multiwalls.

Stag Party Planned by Kansas City Feed Club

KANSAS CITY—A stag party, complete with dancing girls, is the program scheduled for the Oct. 14 meeting of the Kansas City Feed Club, according to Don Shay, Goffe & Carkener, Inc., club secretary. The event will be held in the Aladdin Hotel, and will start with a cocktail hour at 6:30 p.m. followed by dinner and the program. Reservations may be made through Bob Coughenour, Rodney Milling Co., club treasurer.

New Denver Elevator

DENVER, COLO. — A new grain elevator is being built in Denver by the Farmers Union Marketing Assn. The new elevator will have a capacity of one million bushels grain and will be composed of 13 large tanks, each 25 ft. in diameter and 160 ft. in height.

New Crop Feeds Bring Price Cuts

Demand for most feedstuffs was only fair during the past week, the U.S. Department of Agriculture reports, as mills apparently held off from buying in anticipation of further lowered costs.

Record supplies of feedstuffs and feed grains provided little reason to build up stocks, and the week's market was generally lower, led by a drop of $5 ton in soybean meal.

Meanwhile, soybean meal processors are looking forward to a more stable market in the near future as the harvest moves toward its windup. During the past two weeks, the market tumbled swiftly and dropped prices as much as $10 for spot and immediate shipment and cut back forward positions by some $4. Unrestricted meal was $52.50 bulk, Decatur, late this week for spot shipment and $50 for deferred.

One processor said this week he expects the price to hold at $50 or more through November and December. He predicted that the premium for spot shipment would disappear by the end of October.

His opinion is based on the fact that soybeans are at about the same price they were a year ago while oil is down sharply. At the same time, one processor pointed out, feed demand this year—in sharp contrast to a year ago—is good and can be expected to continue good through the remainder of the calendar year.

Meanwhile dehydrated alfalfa meal continued to gain strength and averaged $1 higher this week. Sellers said the demand has been very strong for high quality, late cuttings which blenders want for mixing with lower quality material now in storage from early cuttings this summer.

The USDA report for Oct. 8 showed cottonseed meal holding at $53.50 for expeller type, sacked, Memphis, but solvent meal down $1.50 ton to $51.50, sacked, Memphis. Linseed meal maintained a firm undertone at $50@50.50, bulk, Minneapolis.

Animal protein feeds strengthened with a moderate demand for light offerings. Meat meal and tankage advanced $1@1.50 with trading limited by small available supplies. Fish meal continued tight with price $1@2 over a week earlier.

Wheat millfeeds dropped $2.50@5.50 at the principal producing centers, but the loss was less severe at the distributing centers.

Elevator Constructed Month Ago Collapses

AMERICAN FALLS, IDAHO — Grain that spilled over approximately 5,000 sq. ft. when a Glove-Pillsbury elevator collapsed here recently, is being recovered by grain augers or "bazookas" at the rate of 300 bu. every 15 minutes.

Estimated time for the clean-up operation is seven to 10 days, according to Dan Lucas, Minneapolis, Pillsbury engineer, who is aiding in recovery of the grain.

There is also concern about the possible collapse of the adjoining bin.

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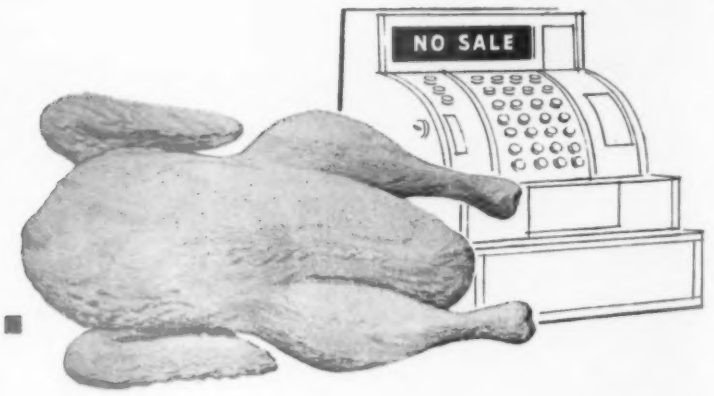

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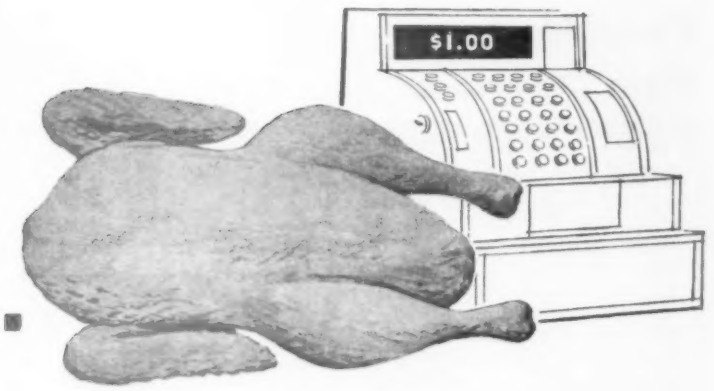

is SMALL'S Dehydrated Alfalfa

When it comes to buying poultry, housewives today know what they want . . . and what they want is that "Golden Look". Likewise, tests everywhere are proving that high grade dehydrated alfalfa and that "Golden Look" go hand in hand. The secret to it all is a vital pigment known as xanthophyll. Small's Dehydrated Alfalfa offers you a rich source of xanthophyll in a form that is both economical and easy to use, plus dozens of other vital nutritive elements.

Xanthophyll is an extra benefit . . . at no extra cost. So start using Small's Dehydrated Alfalfa in your poultry feeds today, and poultry raisers will quickly recognize that *yours* is the type of feed that they must have to produce the kind of poultry and eggs that housewives everywhere are demanding.

FREE . . . WRITE TODAY FOR IMPORTANT ARTICLE ON PIGMENTATION! Appearing in a recent issue of Feedstuffs, this article reports on research showing effect of dehydrated alfalfa in producing the kind of pigmentation poultry buyers today are demanding, also other valuable data for feed manufacturers.

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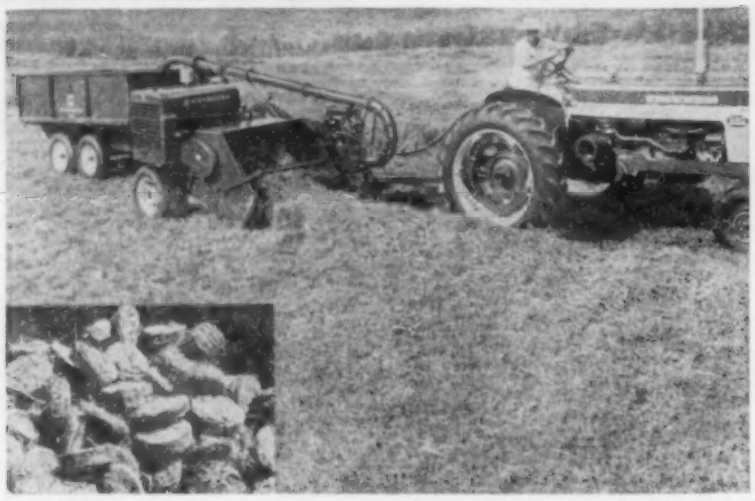

This is the experimental field pelletizer developed by International Harvester Co. engineers. Taking cured hay from the windrow, without grinding, the machine hammers out a continuous tubeful of pressed hay in wafer or biscuit form about 2 in. thick and 4 in. in diameter. The experimental model, it is pointed out, is for research purposes only. The inset above shows wafers which would require about 40% of the storage space needed for baled hay.

Farm Machinery Firm Describes Field "Pelletizer"

CHICAGO — The International Harvester Co. pointed out this week that its engineers are working on a portable machine for "pelletizing" hay directly from the field.

Design work on the pelletizer is progressing favorably, although the machine is not yet ready for production, company spokesmen said.

Feeding tests on the hay "wafers" made on the unit are now being conducted at certain universities, including the University of Illinois. (Feedstuffs, Sept. 6.)

Harvester officials say their machine is one of the first portable units for pelletizing in the field.

"Additives in the Field"

The engineers also say they "look forward to using a hopper on the machine to mix feed additives right in the field."

"This radically new machine picks up hay from the windrow, compresses it into wafers, then delivers them into a trailing wagon," the Harvester announcement says. "These wafers are quickly and easily put into storage with a self-unloading wagon and an elevator. The wafers would require only 40% of the storage space needed for baled hay.

"They are sized for convenient mechanical handling and self-feeding, being about 4 in. in diameter and about 2 in. thick. Old bossy can either break them in two against the manger or crush them up in her mouth. Compare the mechanized handling of these wafers with the manual labor required to handle bales and you begin to see the labor-saving possibilities of this new machine.

"Hay stems compressed into the wafers are up to 4 in. long. Thus the roughage characteristics of regular hay are retained. This allows the digestive juices in the cow's stomach to act fully on the hay in the wafer for maximum meat or milk production."

At the present time, it was noted, the company is working with the Universities of Wisconsin, California and Illinois on feeding tests with the wafers. Preliminary tests were reported encouraging.

Louisville Feed Club Sets Oct. 20 Meeting

LOUISVILLE, KY.—The Louisville Feed Club will hear Rep. John Robison, Jr. (R., Ky.), talk on "World Affairs" at its regular monthly meeting Oct. 20 at the Provincial House. The meeting, scheduled for 6:30 p.m., will follow a social hour which begins at 6 p.m.

The club also announced its officers elected at the September meeting as well as two future programs of the club.

Officers are A. I. Zarow, Kentucky By-Products Corp., president; Carl Swanson, Cargill, Inc., vice president; Richard Case, General Mills, Inc., secretary; Roy Zehner, Master Feed & Seed Co., treasurer. Directors are Fred Schardt, Bemis Bro. Bag Co.; Jack Sheehan, Diamond Crystal Salt Co.; Mike Darrow, Brown-Forman Distilling Co., and R. W. Hughes, Master Feed & Seed Co.

The programs announced are the annual dinner-dance Nov. 14 and the Christmas Stag Party Dec. 15.

Cyanamid Reduces Supplement Prices

NEW YORK—American Cyanamid Co. announced to feed manufacturers this week that its entire line of Aurofac Aureomycin chlortetracycline feed supplements was substantially reduced in price effective Oct. 6, 1958.

F. O. Noel, animal industry products manager of Cyanamid's agricultural division, said the price reductions were made possible by a steadily increasing use of Aureomycin in livestock and poultry feeds. As a result, he said, the company has been able to reduce its production costs and can now pass the savings on to its feed manufacturer customers.

Cyanamid has also lowered its carlot quantity differential to truckload quantity. This means that a feed manufacturer can now purchase a combination of Cyanamid animal feed products with only a minimum of 23,000 lb. required to obtain the same price advantages previously allowed for orders of 40,000 lb. or more, Mr. Noel explained.

Chicago Feed Club To Meet Oct. 17

CHICAGO — Howard Gramlich, Chicago & Northwestern Railway, is the guest for the first meeting this fall of the Chicago Feed Club scheduled the evening of Oct. 17 at the Congress Hotel. He will talk on "Problems Created by Our Phenomenal Population Increase."

Officers to guide the club for the year ahead also are to be elected. The nominating committee is made up of Gladwin A. Read, Gladwin A. Read Co., Evanston; John J. Zima, Kraft Foods Co., and E. G. Young, Illinois Farm Supply Co., all former presidents of the organization.

The social period will begin at 6 p.m. with dinner served at 7.

Broiler Expansion Encouraged in N.C.

RALEIGH, N. C.—North Carolina broiler producers are being urged to expand their operations in view of recent drops in corn and baby chick prices.

Dr. Clayton P. Libeau, marketing specialist with the North Carolina extension service, said the declines in corn prices from $1.65 to $1.20 bu., and baby chick prices from $16 to $10 per hundred, place "North Carolina broiler producers in a good competitive position over other producing areas."

Pointing out that Georgia producers cut back almost 8% in chick placements, citing the week of Sept. 17 as an example, Dr. Libeau declared that "if North Carolina producers don't increase placements, Maryland and Delaware will. And we need the income and employment in North Carolina."

Dr. Libeau said that each truck load of poultry leaving North Carolina "brings in more than $6,000, and if that sum is spent five times before it leaves the state, it can support five families for a year."

Industrial Molasses To Build Terminal

TOLEDO, OHIO—A bid by a New Jersey firm to construct and operate a four-million-gallon bulk cargo terminal at the Presque Isle site being developed by the Toledo-Lucas County Port Authority was accepted by the authority recently.

Industrial Molasses Co., Leonia, N.J., will become the first tenant at the Presque Isle site, on which work already has begun.

The firm will build the liquid cargo terminal at its own expense—estimated at more than $400,000—and turn title to the facility over to the authority, although the company will operate, maintain and pay taxes on the project.

The accepted bid will mean at least $11,000 a year income to the authority.

Port authority officials recently inspected the Presque Isle development, which will cover nearly 30 acres, and reported that the asphalt paving of the access road has been completed.

Officials of the New Jersey firm have told the authority that they expect to start moving products through the terminal next year. The products will include blackstrap and beet molasses, cane sugar, imported vegetable oils and fish oil and fish solubles.

Western, Central Feed Groups to Meet Jointly

DES MOINES—A joint membership meeting of the Western Grain & Feed Association of Iowa and the Central Retail Feed Assn., Inc., of Wisconsin, will be held at the Scenic Hotel, McGregor, Iowa, Oct. 16, 1958, at 6:45 p.m., according to Bob Skinner, executive secretary of the Western association.

E. L. Eggleton and Dick Phillips, marketing specialists, Iowa State College, will present a flannel board discussion of contract farming. Associations and how they help their members will be discussed by representatives of the Western and Central groups.

MEMPHIS GRAIN INSPECTION

MEMPHIS—Total grain inspected by the Memphis Board of Trade inspection department during August was announced by Arthur A. Williams, executive vice president. The totals were: wheat, 595,500 bu.; corn, 933,500 bu.; oats, 504,500 bu.; grain sorghum, 186,000 bu.; barley, 23,500 bu., and soybeans, 688,000 bu.

Views on Hog Price Prospects In 1959 Vary

How much effect increased hog numbers will have on the price levels for hogs in 1959 is drawing a variety of answers this fall.

Forecasts are ranging from "as good as last year" to "down 50%," according to L. H. Simerl, University of Illinois agricultural economist. In his recent Illinois Farmers' Outlook Letter, he said that while the predictions go on, the swine producer will study the facts now available and will come to his own conclusions.

Mr. Simerl listed the following as basic facts for the swine producer to consider:

1. The official September pig crop report showed that farmers in nine corn belt states were increasing fall farrowings by 17% over last year. Thus, these farmers were carrying out almost exactly the intentions they reported in June. The fall farrowing figure given in September was only ½% larger than farrowing intentions reported in June by the same nine states. (These nine states—Illinois, Iowa, Indiana, Minnesota, Ohio, Nebraska, Wisconsin, Kansas and South Dakota—produced 67% of all hogs produced in 1957.)

2. Farmers in most other states are increasing hog production much less than 17%—probably around 8%. This lower production was indicated by the June report of farmers' intentions. If these farmers are carrying out their intentions as closely as farmers in the nine states, the total fall pig crop will be only about 14% larger than the crop produced last year.

3. The current fall pig crop is the largest ever farrowed except in the war years 1942 and 1943. In relation to population, however, it is a little smaller than the fall crops in 1950 and 1951, but about 15% larger than the 10-year average and a little larger than the crop farrowed in the fall of 1955.

The 1955 fall pigs were sold the following spring and summer for $12 to $16 cwt. Hog prices at that time were on the way up after having sagged to $10 in December and January. In 1956, hog prices were held down by a record supply of beef—86 lb. per person. The per capita supply of beef totals only 79 lb. this year and is ex-

(Turn to **HOG PRICE**, page 124)

New Firm Formed To Produce Urea

PHILADELPHIA—SunOlin Chemical Co. has been formed as a joint subsidiary of Olin Mathieson Chemical Corp. and Sun Oil Co. for the production of urea.

Officers and directors for the new company have been announced by the two parent companies.

James I. Harper of Sun Oil has been named president of SunOlin, and the vice president is S. S. Johnson of Olin Mathieson.

Other SunOlin officers are J. R. Sanderford, secretary and assistant treasurer; Joseph T. Wilson, Jr., treasurer and assistant secretary, and Joseph R. Layton, comptroller. Mr. Sanderford is from Olin Mathieson and Messrs. Wilson and Layton are from Sun Oil.

Four directors have been selected from each of the parent companies. Those named from Olin Mathieson are Donald W. Drummond, John O. Logan, William B. Copeland and Mr. Johnson. Directors serving from Sun Oil are Clarence H. Thayer, Chalmer G. Kirkbride, Mr. Harper and Mr. Wilson.

Incorporated in Delaware, the registered office of SunOlin is 100 W. 10th St., Wilmington, Del.

AT McMILLEN PLANT DEDICATION — This picture was taken at the recent formal dedication of McMillen Feed Mills' new plant in Des Moines. Standing in front of a specially prepared mock-up version of the control panel of the new mill are, left to right: Dale W. McMillen, founder of the company; Hoosier humorist Herb Shriner, who entertained visitors at the dedication program; Iowa's "Favorite Farmer's Daughter," Carla Ann Folkers; Gov. Herschel C. Loveless of Iowa; and Dale W. McMillen, Jr., president of Central Soya Co. and its McMillen Feed Mills division, Ft. Wayne, Ind. The formal dedication was held at the Veterans Auditorium in Des Moines, with more than 6,000 Iowa farmers and dealers attending the plant tour, barbecue luncheon and dedication.

Final 1958-Crop Corn Supports Set

WASHINGTON—The U.S. Department of Agriculture this week announced that price support rates for 1958-crop corn will be unchanged from the "advance" minimum rates announced earlier this year.

Following are the rates available for corn produced in 1958:

1. Corn produced in compliance with acreage allotments in the commercial corn-producing area will be eligible for support at a national average price of $1.36 bu., the same as the minimum announced last spring.

2. Corn produced in noncommercial areas will be supported at 75% of the level of price support to cooperators in the commercial corn area.

3. Corn produced in the commercial area, but not in compliance with acreage allotments, will be eligible for support at a national average rate of $1.06 bu. as announced Sept. 26.

In accordance with legislation, the USDA on March 31 established the $1.36 minimum average support level for 1958-crop corn produced by cooperators in the commercial corn-producing area. It represented 77% of the April, 1958, parity price for corn.

Under law, the minimum average support rate announced last spring could not be decreased, but would be increased if a combination of the corn parity price as of Oct. 1, 1958—beginning of the marketing year—and the supply percentage of the same date indicated a higher minimum level of support.

The indicated supply of 5,115 million bushels of corn available for the 1958-59 marketing year is 134.8% of the normal supply figure of 3,793,600,000 bu., USDA officials explained. Under the legal formula this calls for a support level of 75% of the October, 1958, parity for corn, which is $1.76 bu. This would amount to $1.32 bu., but since the previously-announced minimum national average support rate of $1.36 bu. may not lawfully be decreased, the latter figure becomes the final rate.

P. M. Brandt Dies

CORVALLIS, ORE.—Prof. P. M. Brandt, 70, former head of the dairy department at Oregon State College, died Oct. 2. He had retired June 30, 1957, after 40 years with the dairy department. Prof. Brandt was widely known in the U.S. dairy industry, and was the author of 40 treatises on various phases of the dairy industry.

Membership in Texas Broiler Group Grows

GARRISON, TEXAS—Membership in the Texas Broiler Assn. now totals around 1,000, according to J. B. McMillan, president of the organization, which is now taking steps to affiliate with the Amalgamated Butchers & Meat Cutters Union, AFL-CIO. (Feedstuffs, Sept. 27.)

Mr. McMillan said the reports that only 200 broiler growers have joined the association are erroneous. He said growers in every broiler-growing area of Texas are becoming members.

The recent movement to join the labor union caused mixed reactions in the industry, it is reported. At San Angelo, Marion Balch, who developed a broiler project which has reached over half a million a year, was doubtful if the growers would derive any benefit from forming the association. He said he doesn't think that such an association can help create new markets or stabilize prices that fluctuate from one month to the other.

Brack B. McHan Dies In Quincy, Illinois

QUINCY, ILL.—Brack B. McHan, 73, vice president and director of research of the Calcium Carbonate Co., Quincy, died Oct. 7 in St. Marys Hospital in Quincy.

Mr. McHan was widely known in feed and chemical fields. Under his direction, the wet process for adding iodine to calcium carbonate was developed.

Prior to joining the Calcium Carbonate Co., Mr. McHan was research director for Sears, Roebuck & Co. in Chicago, and before that he did research work for the Buckeye Incubator Co., Dayton, Ohio.

During World War I, as a chemical engineer, he designed and built the explosion plant for the General Explosion Co., Joplin, Mo.

Mr. McHan was born in West Plains, Mo. He studied chemistry at Idaho University. The American Chemical Society is among the many associations of which he was a member.

New Construction Firm

AMES, IOWA — Todd & Sargent Construction Co. went into operation here Oct. 1 as a designer and builder of feed mills and elevators, with offices at 305 S. 3rd St. The business is a partnership of Warren Sargent, formerly of Warren, Pa., and George Todd of Ames. Mr. Sargent was formerly engineer with the Hammond Iron Works in Warren, and with the Pittsburgh-Des Moines Steel Co. in Pittsburgh.

Training Offered in Handling Bulk Trucks

MUNCY, PA.—A bulk truck operation training program has been set up by Sprout, Waldron & Co., Inc., Muncy. A pilot installation simulates actual service conditions, and is designed to acquaint the driver with the truck and with various methods of economical loading and unloading.

Equipment consists of a tank located on the third floor of the Sprout-Waldron experimental building, plus the necessary piping leading down to ground level. It is so arranged that the driver can handle either bagged feeds or bulk feeds or both, if a bag-bulk unit is involved. The training is offered to all Sprout-Waldron customers at no additional cost.

According to Lew English, manager of the Sprout-Waldron bulk truck division, the new program is designed to impress bulk truck operators with the importance of proper handling and intelligent maintenance.

It is expected that this program will lead to longer equipment life, more efficient deliveries and faster servicing. Further details are available on request.

West-of-River Carriers Approve Rate Cut

MEMPHIS—Railroads west of the Mississippi River have approved S.W.F.B. Proposal 2365, calling for reduced freight rates on grain.

These rates are similar to those approved previously by east side carriers.

West side railroads, however, exclude wheat and limit the mileage to 200 miles. East side carriers, which include wheat in their reductions, permit the lower rates up to 400 miles.

Included in west side rates are barley, corn, milo, oats, rye, and soybeans, between origins in Arkansas, Missouri, and Memphis. The General Traffic Committee approved this proposal, but it was appealed.

The executive committee of the Association of Western Railroads gave its consent to the proposal.

ADDS DRIER, WAREHOUSE

IOWA CITY, IOWA — Maas Grain & Feed Service is constructing a new, all-steel warehouse with capacity of 120,000 bu., according to William K. Maas, president. A grain drier is also being installed.

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GLENWOOD FEEDING OAT MEAL
FALCON BRAND PULVERIZED WHITE OATS
STANDARD BRAND PULVERIZED WHITE OATS
DAIRY BRAND COARSE GROUND OATS
CRESCENT BRAND PULVERIZED OATS
CORN OATS PELLETS (Corn-Oats)
MIXERS' PULVERIZED OATS
MIXERS' COARSE GROUND WHITE OATS
MIXERS' PELLETED OATS
APEX BRAND CRIMPED WHITE OATS
OAT FEED
STEAM ROLLED WHOLE BARLEY
GROUND BARLEY
PEARLED BARLEY FLAKES (Max. 2½% fiber) (steam processed)
GLENWOOD PEARLED BARLEY
STAR CRACKED PEARLED BARLEY
STEEL CUT WHEAT
ACME GROUND DOMESTIC FLAX SCREENINGS

Millers TO THE FEED TRADE

FRUEN MILLING COMPANY
MINNEAPOLIS 5, MINNESOTA

OFFICIAL OPENING—Miss Bernice Watson, Maine poultry queen, officially opened the new home office and research center of Wirthmore Feeds, Inc., at Waltham, Mass. (Feedstuffs, Sept. 27). Miss Watson weighed a modern broiler as company officials and guests looked on. Pictured, left to right, are Austin Rhodes, mayor of Waltham; Miss Watson; Robert F. McLeod, Wirthmore president; Howard Harder and William C. Gamble, Corn Products Refining Co., parent organization of Wirthmore Feeds, and Gerald W. Blakely, Jr., president of Cabot, Cabot & Forbes Co., the firm which designed and built the new facility.

FEED NEEDS

(Continued from page 1)

"1. Sound corn price and acreage programs.

"2. Effective measures to cut down the surplus.

"3. New and expanded markets.

"4. Continued emphasis on lower-cost, high quality production.

"5. Alternative crops."

It was in regard to expanded markets for feed grain that Mr. Benson brought in the prospects for expanded livestock production and feed needs as the population continues to climb above the current U.S. total of some 175 million.

"Most Expandable"

"Livestock is the most expandable part of our farm market," Mr. Benson said. "Our people will buy more livestock products of all kinds if they are priced right and the quality is right. And livestock, in a sense, is just another name for feed—for feed on the hoof.

"By 1975 total needs for livestock may be up as much as 60%. Allowing for progress in feeding, this might mean an increased demand of about 50% in feeds.

"Our diets are becoming higher in protein. Again, that means more livestock products.

"Last year the average person ate about twice as much chicken and 2½ times as much turkey as 20 years ago. He ate 30% more beef, but only 9% more pork. In other words, there has been a revolution in our eating habits of poultry and beef. The revolution in pork consumption is yet to come. It is a tremendous opportunity."

Commenting on farm policies and the surplus problem, Mr. Benson said that "agriculture must not be frozen in uneconomic patterns."

Biggest Supply Ever

As an example of the current problem, he noted that in addition to the big corn crop this year, there is a carryover of 1½ billion bushels. This makes the total supply for the marketing year a whopping 5.1 billion bushels—the first time corn supplies have passed the 5-billion mark.

The dangers of the situation, Mr. Benson said, are seen in the recent pig crop report showing that the number of sows farrowing in the Corn Belt this fall is 17% above a year ago. He warned: "Favorable hog prices can be maintained only if production is held to the quantities and of the quality consumers will buy at prices profitable to farmers."

Discussing the five steps (listed above) which would help solve the feed grain problem, Mr. Benson mentioned these things:

Sound Corn Programs: Announced this week is a continuation of reseal programs. Help is being provided with storage. There has not been an effective corn price and acreage program, but on Nov. 25 farmers will have a chance to vote on a program which frees producers from allotment controls, eliminates separate designation of commercial areas, provides a sound relationship among supports for all feed grains, and makes all producers eligible for support.

Measures to Cut the Surplus: The Soil Bank, for one thing, can help. The Great Plains Program also offers an opportunity for farming patterns suited to the area. New export programs will help.

Expanded Markets: In addition to the prospects for a growing feed outlet through livestock, research may show still more industrial uses for the constituents of corn.

Lower Cost, Higher Quality Corn: Continued research is needed to help farmers produce low-cost, high-quality corn. The war on insects and diseases must continue. Research also must find better ways to market and store corn.

Alternative Crops: More crops like soybeans are needed to provide alternative uses of acres in time of glut. The best prospects are for plants that have possibilities as raw material for industry. The castor bean and safflower are examples of progress in developing such crops.

"We are turning agriculture away from stifling controls and toward more freedom—away from government warehouses and toward larger markets—away from timidity and toward boldness," Mr. Benson declared. And, he implied, the livestock economy and feeding are a vital part of the prospects for a sounder agriculture.

Central Soya Plans Additional Stock Issue

NEW YORK — Central Soya Co., Inc., Ft. Wayne, Ind., plans to raise more than $9 million by issuing 200,000 additional common shares of stock for sale to the public, according to a recent report in the Wall Street Journal.

The company filed a registration statement with the Securities and Exchange Commission covering the proposed offering. An underwriting syndicate headed jointly by Goldman, Sachs & Co. and Blyth & Co., Inc., is expected to offer the shares later this month.

At recent market levels the offering would gross Central Soya around $9.8 million. The company will use the proceeds of the offering for additional working capital and to recover funds expended to purchase inventories, according to the report.

Fire Damages Pillsbury Feed Mill in California

COLTON, CAL.—The Pillsbury Co. feed division plans to continue service to customers in the Colton area by shipping in manufactured feed from other Pillsbury plants, according to G. R. Peterson, general manager of the division.

Fire on Oct. 2 damaged production equipment in the Pillsbury feed mill at Colton. Cause of the fire has not yet been determined. Fire walls in the building confined the damage to the machinery section, according to a company announcement. Early reports placed the damage at $200,000.

Mr. Peterson said local production facilities will also be used to supply large volume bulk feed deliveries, and that the company expects to be able to maintain full service to all of its customers in the area. The company has made no announcement as to whether the Colton plant will be repaired or replaced.

Company officials said the plant was insured.

Chase Bag Chairman, E. K. Ludington, Dies

NEW YORK—Elliot K. Ludington, 82, chairman of the board of directors of Chase Bag Co., died of a heart attack on Oct. 8 at St. Clare's Hospital, New York City. Mr. Ludington had been in the bag business more than 60 years.

He was originally from St. Louis, where he was active in civic and industrial affairs for many years. More recently, he maintained residences in Greenwich, Conn., and Miami Beach, Fla.

During Mr. Ludington's tenure as president of Chase Bag, from 1910 to 1934, the firm was expanded from two plants to a nation-wide organization of 13 factories and a paper mill. As chairman of the board he continued active interest in the company, particularly in the development of new products.

Survivors include his widow, four children, 11 grandchildren and 15 great-grandchildren.

Hercules to Produce Feed-Grade Urea

WILMINGTON, DEL. — Hercules Powder Co. will start commercial production of urea at its new plant in Hercules, Cal., it was announced here.

In addition to its fertilizer production, the company will make available a feed-grade urea for cattle feeds.

The plant has a capacity of 20,000 tons a year.

USDA Begins Quoting Feed Prices in Bulk

WASHINGTON—The U.S. Department of Agriculture this week began quoting feed prices in bulk in its weekly feed market summary and statistics report.

"During the past few years the handling of feedstuffs in bags has decreased with a corresponding increase in bulk handling and sales, particularly at the wholesale level," the report said. "In many areas, practically all of the feedstuffs sold are in bulk. While a large quantity of feedstuffs continues to be retailed to feeders in bags, by far the larger quantity of feedstuffs at the wholesale level is sold on a bulk basis."

The index number of wholesale feedstuff prices released weekly by the USDA has adjusted to the new method of reporting feeds in bulk.

Bagging charges will be published once a month in the report for a few months in which monthly average bulk feedstuff prices are published. These bagging charges may be used to adjust the bulk prices to bagged.

Oklahoma Meetings On Feed, Poultry Set for Oct. 16-17

STILLWATER, OKLA.—The 10th annual Oklahoma Formula Feed Conference and the Oklahoma Poultry Industry Convention have been scheduled for Oct. 16-17 at the Oklahoma State University Student Union, according to Dr. Rollin H. Thayer and Prof. D. L. Brooks, poultry science department, co-chairmen.

The Formula Feed Conference will feature reports on pelleting feeds for cattle and sheep, cost studies on hog raising, feeding standards and other research.

Prof. Brooks, chairman for the poultry industry convention, said that this segment of the program will include research reports on poultry nutrition, poultry housing and other investigations, plus discussions of problems and trends in the poultry industry. Among the latter topics will be mechanization in egg handling, poultry diseases, market expansion and methods for starting pullets.

Speakers on Thursday (Oct. 16) morning include: Sewell G. Skelton, poultry marketing specialist at OSU ("Profit Pointers Program"); O. Harvey Green, American Poultry & Hatchery Federation ("Is Your Frying Pan Too Small?"); Dr. W. J. Stadelman, Purdue University (mechanization in egg handling), and Lloyd Larson, Midwest Feed Manufacturers Assn. (veterinarians and feed dealers working together).

Speaking Thursday afternoon (formula feed conference) will be: Dr. L. S. Pope, OSU (pelleting feeds for cattle and sheep); Dr. A. J. Wood, University of British Columbia (changing digestive enzyme patterns during growth); Dr. J. C. Hillier, Oklahoma State University (cost studies on hog raising), and Dr. Allen D. Tillman, OSU (feeding standards).

Speaking at the Thursday afternoon session of the poultry industry convention will be Dr. Robert H. Leonard, Muskogee, Okla. (poultry diseases), and Don M. Turnbull, APHF ("Why Don't We Get Going on Eggs?").

A Poultry Industry Convention and Formula Feed Conference banquet is scheduled for 6:30 p.m. Thursday evening, with Mr. Green as toastmaster, and featuring variety show entertainment.

Opening the program Friday, Oct. 17, will be Dr. Rollin H. Thayer, OSU (turkey nutrition research at OSU). Delbert Black, OSU poultryman, will discuss pole shed confinement versus range rearing of market turkeys, and Tom Brinegar, Feed Age, Chicago, will discuss sales and advertising.

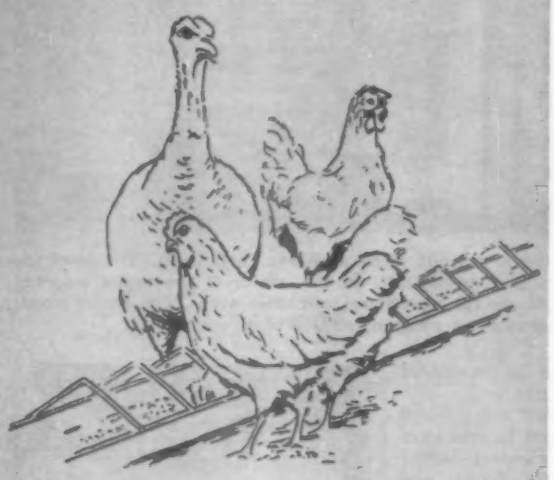
At 11 a.m. on Friday there will be a panel discussion, moderated by Prof. Brooks, on the subject "Started Pullets." Panel members will be H. Clay Boston, Boston's Hatchery, Carnegie, Okla.; Eustace Coombs, J. O. Coombs & Son, Sedgwick, Kansas, and Al Hill, Capitol Hill Hatchery, Oklahoma City.

Two speakers are scheduled for the Oct. 17 afternoon program: Dr. Charles L. Norton, head of the OSU department of dairy husbandry (management practices) and Walker McBee, S and S Feed Store, Shawnee ("A Success Story").

A question-answer session, moderated by Dr. John W. West, head of the OSU poultry science department, is scheduled for 2:15 p.m. on Oct. 17.

GRAIN MAN HONORED

EAST WEARE, N.H.—J. Hardy Legge, manager of a grain store in nearby Goffstown for many years, was honored at an open house party when he observed his 85th birthday here recently.



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makes barley better for birds at lower cost than corn diet.

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PERFORMING COMMERCIALLY

DaweNzyme is long out of the laboratory stage and into commercial usage. Hundreds of carloads of top-performing feeds are being fortified with DaweNzyme, the starch-splitting enzyme system which makes barley the approximate of corn in growth, feed efficiency and palatability.

DaweNzyme extensively tested by state experiment stations and proved commercially, is an economic boon to those where barley is available for less than corn. With DaweNzyme, barley can be the principal grain without the former penalties of lowered growth and feed efficiency, compared to corn.

DaweNzyme is easily incorporated in the feed formula. It is a dry, free-flowing, stable material. No special handling is involved and ordinary mixing procedures are followed.

While attention has been focused on barley, tests show small, but consistent, improvements in the utilization of corn itself, when supplemented with DaweNzyme.

1956 ... Dawe's began research and development on the application of enzymes to nutrition.

1957 ... April ... Washington State College reported starch-digesting enzymes improved nutritional value of barley in poultry feeds.

1957 ... July ... Dawe's publicly announced DaweNzyme as the first commercially available enzyme system for feed application.

Investigate the economic advantages of fortifying your feeds with DaweNzyme today. It is available immediately in any quantity.

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Facilities of New Kent Plant At Sioux City, Iowa, Add Up to Efficient, Compact Operation

By ROGER BERGLUND
Feedstuffs Managing Editor

They were aiming for an efficient, compact plant, with automatic and smoothly running operations, when they built the new Kent feed mill at Sioux City, Iowa. And, the plant manager points out, that is just what they have.

Kent Feeds, Inc.—headquartered at Muscatine, Iowa—built its new Sioux City plant to serve dealers and feeders in parts of a four-state area surrounding the northwestern Iowa location of the mill. The plant, with a capacity of 90-100 tons per day on a one-shift basis, was completed earlier this year.

K. C. Daniels, western division sales manager, explains that the new plant is part of a Kent expansion program in the "Siouxland" area, including sections of Iowa, Nebraska, South Dakota and Minnesota. Volume and service needs, he noted, outgrew the warehouse facilities which were opened in 1948 and enlarged in 1956, and construction of the new mill was undertaken to supplement production at the company's big, modern plant in Muscatine. The latter mill serves eastern Iowa and parts of Illinois and Wisconsin.

This Corn Belt feed firm had its start back in 1927, when G. A. Kent, founder and president of the firm, began a small elevator and mill operation in Indianola, Iowa. He moved the operation to Muscatine, on the Mississippi River, in 1936, and further expansion has followed.

Complete Line

The new plant turns out a complete line of cattle, swine, poultry, turkey and dairy feeds, which are distributed through more than 100 dealers within a 150-mile radius of Sioux City.

Mr. Daniels is headquartered at the new mill, located just south of Sioux City on highway 75, as is Kenneth Gregersen, office sales representative. The man in charge of all plant and office operations is J. R. Flynn, and the superintendent is Sherwood Shoultz.

Kent engineers at Muscatine were responsible for the design of the new mill, with Richard Halpin as the project engineer in charge of planning and construction supervision. The plant was built by W. A. Klinger, Inc., a Sioux City contractor.

The storage, handling and processing facilities add up to an efficient, compact and economical mill, Mr. Shoultz points out after several months of trouble-free operation.

The plant has a number of unusual features, as a further description of the operations will show.

An exterior view of the new Kent plant at Sioux City, Iowa. The steel ingredient storage tanks are on the left. In the center is the manufacturing section, and to the right are the warehouse and office areas. The entire plant, the manager notes, makes for a compact and efficient operation.

The milling equipment and finished feed storage are housed in one integrated building—an all-steel Butler building with concrete floors, and skylights in the roof. The warehouse area is 200 by 60 ft. and is used for storage of bagged ingredients, sacked finished feeds and bulk feeds in one-ton portable bins moved by forklift truck. The mill area, with the mixing, pelleting and packing operations, is at one end of the warehouse. This part of the building is 60 by 50 ft. in area and rises to a height of 50 ft. at the peak.

The bulk ingredients are held in outside bolted steel tanks adjacent to the mill. Total bulk storage capacity in the 13 tanks is 800 tons, with further additions planned in the near future. The ingredients are proportioned, conveyed and elevated directly from these tanks to the mixing operation.

Actually, this mill is a one-story operation, with all principal machinery on or erected just above the one floor, and small holding bins, of course, above the equipment. Materials coming from the ingredient tanks are elevated three times—above the mixer, above the pellet mills and above the packer.

From ingredient tanks to storage or loading out, everything is a direct operation. All feed, as it is mixed, goes directly to the pelleting operation and then to packing or bulk bins.

In this connection, Mr. Shoultz points out that everything in the plant is in sequence, with all machinery behind it cutting out automatically if a particular piece of equipment fails.

Ninety per cent of the ingredients are received in bulk, with this percentage to be increased to 95 with the planned addition of more tanks. Materials are unloaded from trucks and boxcars by Ehrsam power shovel, augered to bucket elevators, raised, passed through an S. Howes shaker and conveyed to any of 13 Black, Sivalls & Bryson tanks, which are 56 ft. high and from about 9 to 12 ft. in diameter.

The pellet mill operator is shown here in a picture taken from between the two 100 h.p. California pellet mills. He is at a panel which controls the movement of feed from the mixer through pelleting to the packer.

The hopper bottoms of the storage space in these tanks are about 12 ft. above the concrete platform on which the tanks are erected, and the Kent people make use of this space—enclosed by the lower parts of the tanks—for handling facilities and storage of various supplies. In fact, the push-button hopper scales for ingredient proportioning are inside two of the tanks beneath the storage section, as is the hammermill for grinding corn and dehydrated alfalfa pellets. The corn and alfalfa pellets are moved by screw conveyor from storage into the hammermill, located beneath and between their respective storage sections. The ground material is elevated from the mill into adjoining tanks.

Mixing

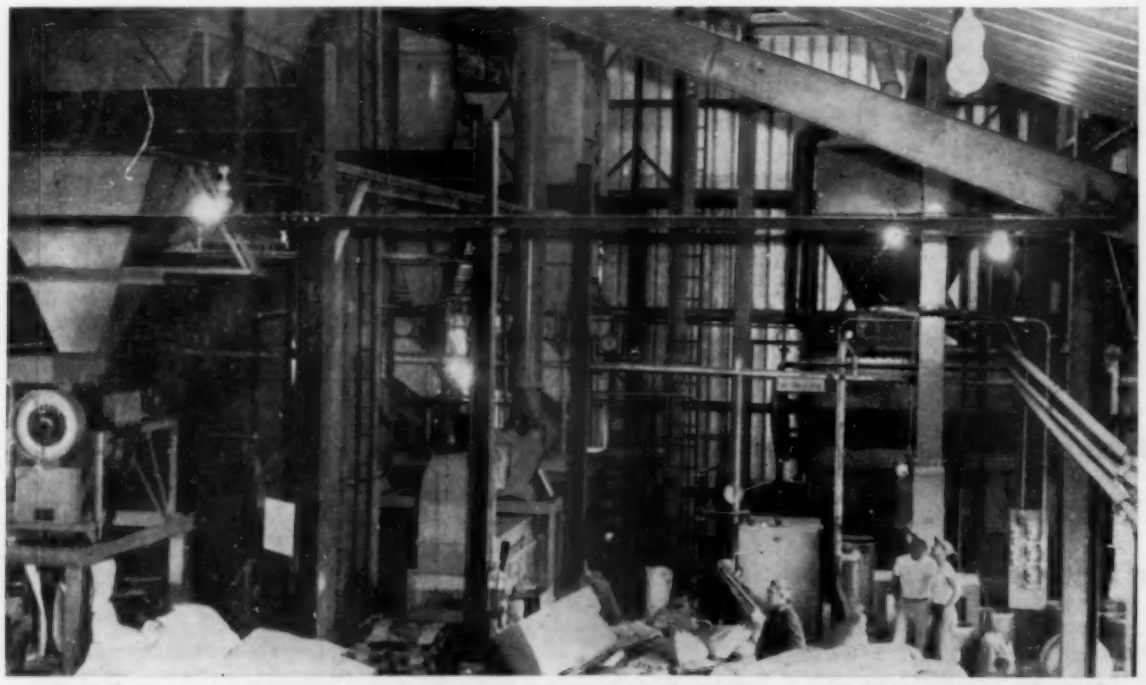
Screw conveyors take ingredients from the tanks to the two Fairbanks-Morse hopper scales, both of which are used to proportion the principal ingredients in a two-ton batch. Manual push-button controls, located inside each of the two tanks housing the scales and holding hoppers, are used by the operator to control the augers and weigh out the ingredients on the scales, capable of accuracies of 1/10 of 1%. This man also takes care of the grinding.

From the holding hoppers, a batch is conveyed into the mill. Micro-ingredients are added to the major ingredients, at a point inside the lower part of one of the tanks, as the materials are being conveyed into the mill. This, Mr. Shoultz notes, gives some preliminary dispersion before the final mixing.

Inside the mill, the ingredients are elevated to a holding pin above the Ehrsam 2-ton horizontal batch mixer. Bagged ingredients are added inside the mill and elevated into the holding bin.

A man inside the mill is responsible for micro-ingredient, liquid and

On the left in the first picture is K. C. Daniels, western division sales manager for Kent, who is headquartered at the new mill. Shown with him is Kenneth Gregersen, office sales representative. The plant manager and superintendent are shown in the second picture as they confer on the production schedule. J. R. Flynn (left) is in charge of all plant and office operations, and Sherwood Shoultz (right) is plant superintendent.



Just about the entire manufacturing section of the compact Kent Feeds plant at Sioux City is seen in this picture. On the right is the mixing equipment section, including holding bin, mixer, surge hopper, bag dump hopper for minor bagged ingredients and liquid equipment. To the left of center is the pelleting section, including holding bin, pellet mills and horizontal pellet coolers. On the far left is the bagging scale.

bagged ingredient additions and the mixing operation. The ingredient proportioning in the outside tanks and the mixing operations inside are coordinated by a system of signal lights handled by the scale operator and the mixer man.

Molasses and fish solubles are stored in 30,000-gal. tanks beneath the warehouse area. Fats are received in drums.

The liquids are added to the feeds in the batch mixer. Wenger equipment is used for the heating, automatic metering and pumping of the molasses and fish solubles. The fat is put into a heating tank near the mixer and pumped into the mixer at a temperature of about 110 degrees.

Pelleting

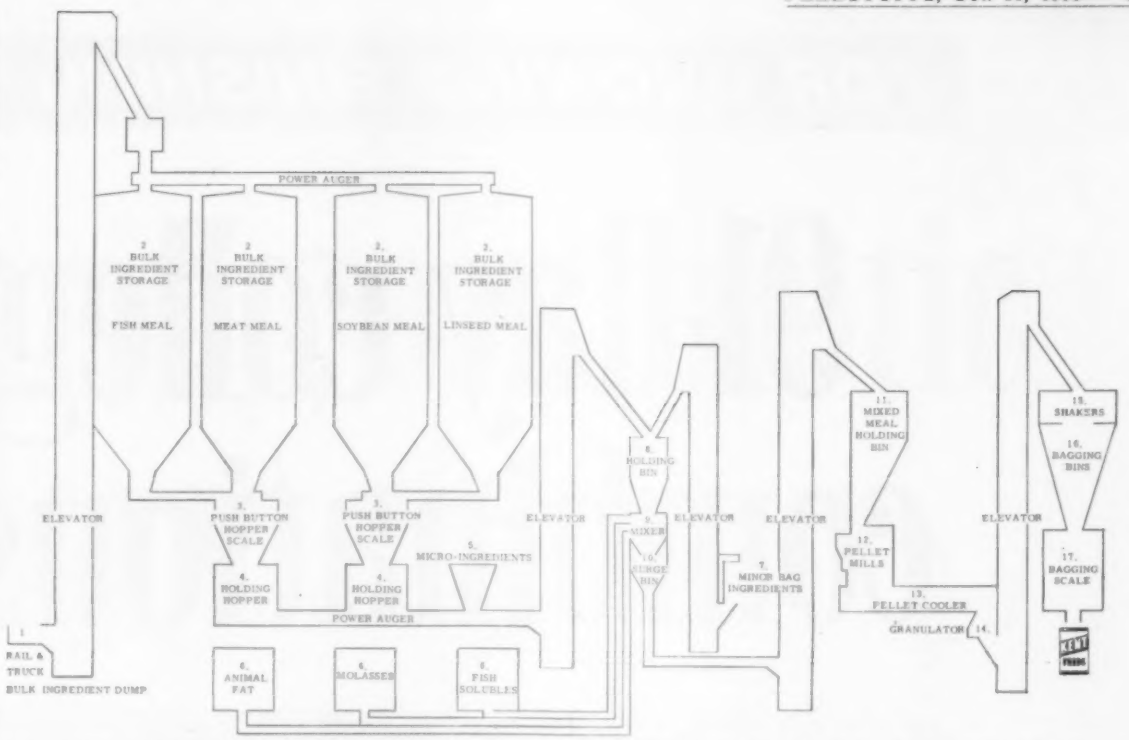
Feed from the mixer, with instant drop, is discharged into a surge bin and then is conveyed and elevated to the 10-ton bin above the two pellet mills, or to a Davis shaker and then into the bagging bin if in meal form. Some 95% of the mill's output goes out as pellets or crumbles. All pellets are made in 5/32″ size, which, Mr. Daniels explains, is a good size for the various species of birds and animals fed.

The pelleting is done on two 100-h.p. California Century pellet mills, with a capacity of about 16 tons per hour. A gear box on the equipment, said Mr. Shoultz, gives the equivalent of 125 h.p. on each mill. The pellet mills are erected several feet above the floor, and the pellets drop into two 32″ Wenger horizontal coolers near the floor level. Pellets to be granulated go over California crumble rolls. The pellet mill operator, with a small control panel near the mills, controls the conveying and elevating of feed from the mixer through pelleting to the packer.

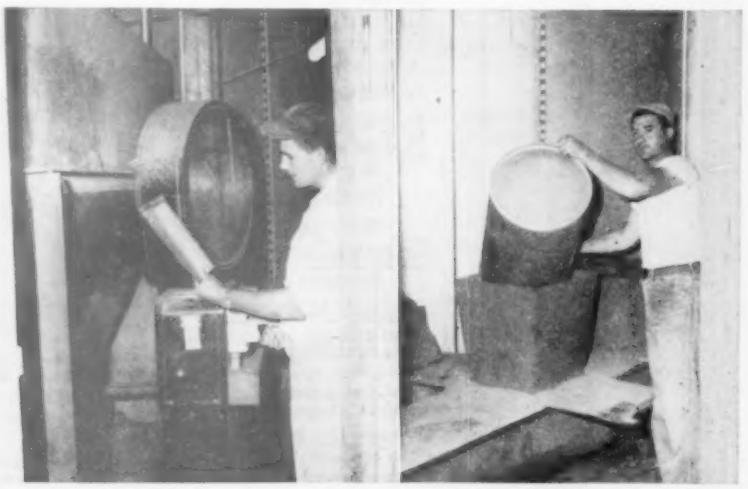
Packing

The cooled pellets and crumbles are elevated to two Davis shakers above two 6-ton packing bins. Packing is then handled on an automatic I. & C. Bagger distributed by Union Bag-Camp Paper Corp. Mr. Shoultz said they have operated the bagger at 20 bags per minute, with an accuracy of plus or minus 2 oz., and could go to 25 bags per minute. The

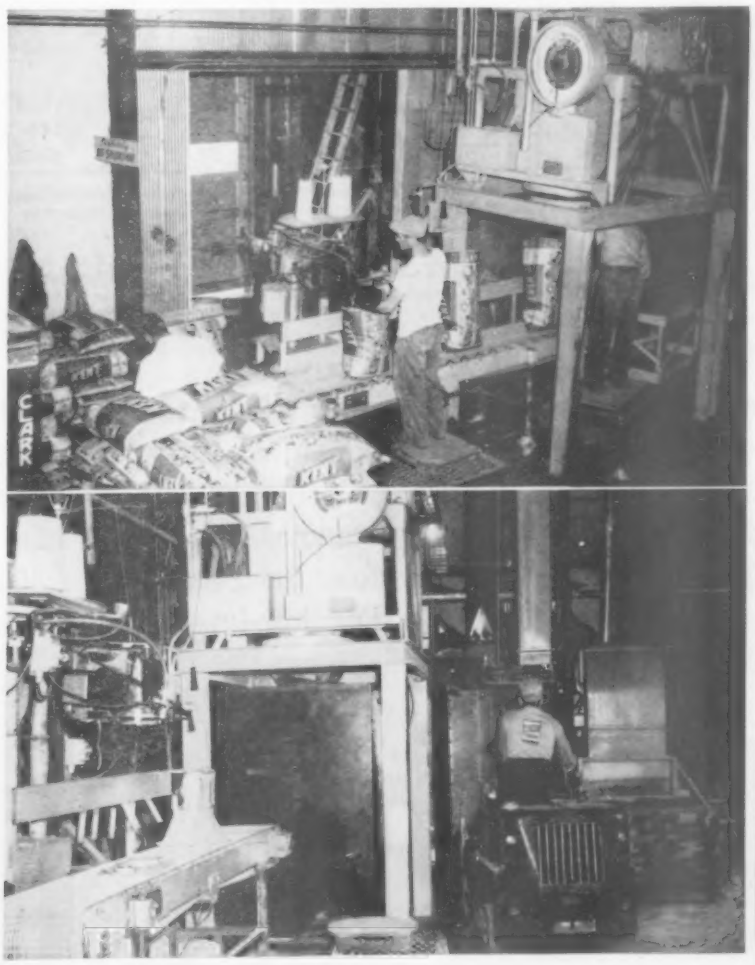
(Turn to FACILITIES, page 116)



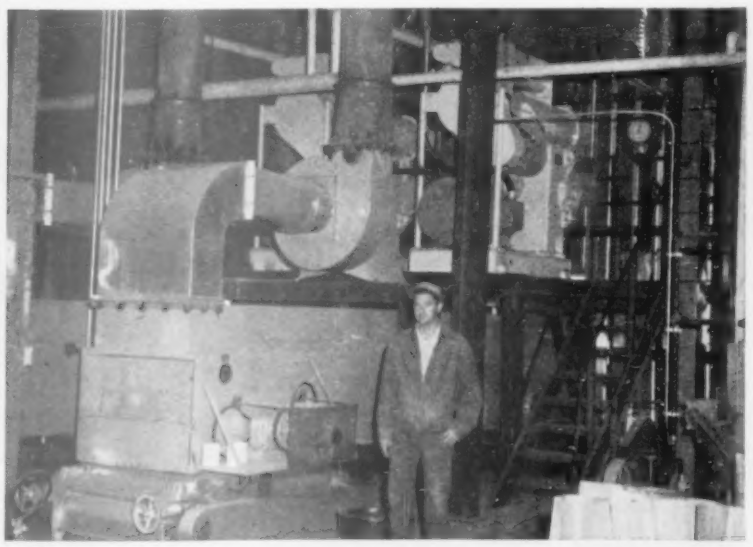
A simplified diagram outlines the flow in the Kent Feeds plant at Sioux City. Ingredients are received (1) by truck and rail and elevated and conveyed into (2) any of 13 steel tanks. Ingredients are proportioned by power auger into hopper scales (3) with push-button controls. They are discharged into holding hoppers (4), conveyed and elevated along with micro-ingredients (5) to a holding bin (8). Minor bagged ingredients enter the formulation at (7) and also are elevated to the holding bin (8). Liquids (6) are metered into the horizontal batch mixer (9). From the mixer (9), with instant drop, the feed goes to the surge bin (10), from which the feed is conveyed and elevated to a holding bin (11) above the two pellet mills (12). Pellets are cooled in two horizontal coolers (13), and then if to be granulated, the pellets go through two crumble rolls (14). The finished feed is elevated to shakers (15) above the two bagging bins (16). The high-speed bagging scale (17) is used for filling both bags and 1-ton portable bulk bins.



Use is made of the space between the hopper bottoms in the ingredient storage tanks and the concrete platform on which the tanks are erected. In fact, for one thing, the two hopper scales for ingredient proportioning are inside two of the tanks. In the picture on the left, the operator is proportioning ingredients with the manual push-button controls inside one of the tanks. In the photo on the right, at a point inside one of the tanks, micro-ingredients are being added to the major ingredients as the materials are being conveyed into the mill.



An I&C Bagger, shown in these photos, is used for filling both bags and portable bulk bins. In the top picture, 50-lb. papers are being filled, sewn and palletized. The plant has packed at 20 bags per minute and could go to 25 per minute, the superintendent notes. In the bottom photo, a 1-ton portable bin, moved by fork lift truck, is being filled with bulk feed. The bagger is installed higher than usual, and the sewing machine and conveyor are portable and can be moved out of the way so that a bulk bin can be moved under the unit.



A workman is shown near the pelleting facilities in the Kent plant. Seen in the foreground is one of two horizontal Wenger pellet coolers. To the rear and elevated somewhat are the plant's two California pellet mills. Crumbles are made on California crumble rolls.

FOR GROWING-FINISHING SWINE

91-day college test combinations tells

SWINE TEST AT LEADING MIDWEST UNIVERSITY

Results on Pasture of Various Antibiotic Combinations and Other Bactericidal Agents on Growing-Finishing Swine
(May 16 to August 15 – 91 days)

Lot No. Additive(s) in Grams per ton	1 Control 0	2 Terramycin 20	3 NF-180 50	4 BACIFERM-PB* (zinc bacitracin) 20	5 Pro-Strep 20	6 SQ-Strep 20
No. pigs per lot (Initially, there were 12 pigs per lot. Pigs removed from the experiment failed to grow or lost weight due to "enteritis" or virus pig pneumonia.)	11	10	11	12	12	11
Av. initial wt., lb.	37	37	37	37	37	37.5
Av. final wt., lb.	177	184	183	190	183	185
Av. daily gain, lb.						
First 42 days	1.25	1.37	1.31	1.44	1.24	1.38
Av. for experiment	1.54	1.62	1.60	1.68	1.60	1.62
% increase in gain	–	5.2	3.9	9.1	3.9	5.2
Av. daily feed						
Complete mixed ration	4.74	4.74	4.88	5.01	4.78	5.09
Feed per 100 lb. gain[1]	308	293	305	299	299	314
Feed cost per 100 lb. gain	$8.07	$8.02	$8.95	$8.13	$8.15	$8.45

[1]Prices used: Ground corn, $2.45 per hundred; Protein Supplement, $78.00 per ton; 14% protein ration, $2.67 per hundred; 12% protein ration, $2.60 per hundred. Cost of additives used: terramycin, 12 cents per gram; NF-180, 12 cents per gram; penicillin-zinc bacitracin mixture, 10 cents per gram; penicillin-streptomycin mixture, 10 cents per gram; streptomycin, 12 cents per gram; sulfaquinoxaline, 1.5 cents per gram.

*Contains zinc bacitracin plus penicillin (3.1 ratio)

This test compared six different treatments and included antibiotics and anti-microbial agents. Baciferm-PB produced the best average daily gain for first 42 days and at the conclusion of the experiment (91 days). Baciferm-PB also yielded the greatest percent increase in gain.

Baciferm-PB proved effective in every test! Put the efficiency of Baciferm-PB in your poultry and swine feeds. This outstanding combination of penicillin and zinc bacitracin is available in various potencies. Zinc bacitracin is an exclusive CSC product made under Patent No. 2,809,-892 issued October 15, 1957. For low-level feeding, for high-level feeding — specify Baciferm-PB.

the buy is

comparing antibiotic the story

the buy is Baciferm®-PB! And here's proof. Of 6 lots of Durocs, one was fed a ration containing Baciferm-PB, CSC's combination antibiotic supplement containing zinc bacitracin and penicillin. Result? Best average daily gains! Greatest increase in gains of all 6 lots! You can formulate this same kind of performance into your rations. Here's the evidence of effectiveness.

CSC supervised test on Tiffin Farm in Illinois also shows the superiority of BACIFERM-PB over other antibiotics in stimulating growth.

RESULTS IN FEEDING ANTIBIOTICS TO SWINE IN DRYLOT (88 DAYS)

Treatment	Basal	BACIFERM-PB* (zinc bacitracin)	Oxytetracycline	Chlortetracycline	Combination[1]
Antibiotic level, gm/ton[2]	0	50-10	50-10	50-10	50-10
Number of pigs	20	20	20	20	20
Av. Initial Wt., lb.	43.8	44.0	43.8	43.7	43.9
Av. Final Wt., lb.	184.1	191.2	183.9	190.7	201.8
Av. Daily Gain, lb.	1.55	1.68	1.59	1.67	1.80
Av. Daily Feed, lb.	6.36	6.50	6.39	6.75	6.52
Lb. Feed/lb. gain	4.05	3.76	3.99	4.04	3.63

[1] Combination contained 50% BACIFERM®-PB*, 25% Aureomycin® and 25% Terramycin®.
[2] 50 Grams of antibiotic fed from weaning to 75 pounds, 10 grams fed from 75 to 200 pounds.
* Contains zinc bacitracin plus penicillin (3.1 ratio)

This test on Hampshires indicates that Baciferm-PB is more effective than the other antibiotics in effectively stimulating growth in growing fattening pigs. Baciferm-PB improved the daily gain by 8.4% and feed efficiency by 7.7% over the control lot.

BACIFERM-PB effectiveness proved time and again at the CSC research farm. The table that follows is a brief summary of comparative performance in tests run in 1956 and 1957.

AVERAGE OF 4 SWINE TESTS (338 pigs)

Test	Percent Improvement In Growth Over Control			Percent Improvement In Feed Efficiency Over Control		
	BACIFERM-PB* (zinc bacitracin)	Aurofac®	Terramycin®	BACIFERM-PB* (zinc bacitracin)	Aurofac	Terramycin
T-1-56	5.0	3.6	5.0	5.8	0.5	6.0
Mc-1-56	7.1	−0.8	0.8	5.1	7.7	1.9
T-2-57	5.7	6.3	3.4	1.5	4.9	−2.5
25	8.8	−4.7	2.7	19.3	18.0	11.4
Average	6.5	1.2	3.0	7.9	7.8	4.2

* Contains zinc bacitracin plus penicillin (3.1 ratio)

Baciferm-PB consistently improved growth response over the control in each of the 4 tests. Averaging the per cent growth improvement for the three antibiotics tested clearly shows the superiority of Baciferm-PB.

BACIFERM®-PB

(Zinc Bacitracin Antibiotic Supplements Combined with Penicillin)

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CSC

North Carolina Researchers Conduct "Hothouse" Pig Raising Experiment

RALEIGH, N.C.—Efforts to grow pigs in a hothouse "to pig parlor size" are being made by two North Carolina State College animal husbandmen, Drs. Kennard Matrone and James G. Lecce.

Basing their research on the premise that baby pigs can be raised away from their mothers, just as baby chicks are, the professors have set up their laboratory at North Carolina State College with a "delivery room" where the pigs are caught immediately after birth. The new-born pigs are taken to a "nursery" where they are placed in individual cages for the first two weeks, after which they are taken to a "post nursery" and then to the pig farm.

Two major problems, reported by the researchers, are keeping the pigs alive during the first two weeks and making them immune to barnyard diseases.

With a high mortality rate, the professors have indicated there may be an inadequate diet or a high incidence of disease. The importance of colostrum was emphasized in their report as it obviously helps young pigs build up resistance to disease as well as providing nourishment for the first few days after the pigs are farrowed.

In an effort to solve the nutrition problem, they are concentrating on a comparison of blood samples from hothouse and sow-raised pigs.

Once the pigs have passed the first three weeks, the professors report little difficulty in replacing the pigs' mothers.

Sow-raised pigs averaged 30-35 lb. at eight weeks, compared to 50-60 lb. for the hothouse pigs.

The second major problem is experienced when the pigs are placed with swine herds on the farm, when the mortality rate again soared, leading the researchers to indicate the hothouse pigs did not have a chance to build up an immunity to germs found around other hogs.

To combat this danger, Dr. Lecce began to gradually introduce the hothouse pigs to germs with which they would later come into contact, with "promising results."

Drs. Lecce and Matrone are concentrating on the techniques "for outdoing sows in raising pigs," leaving the application of what they learn to somebody else.

"Pig parlors are a step in that direction," they said, "and our work will help grow pigs with assembly-line methods."

HOUSEWARMING GIFT — Thomas M. Ware, right, president of International Minerals & Chemical Corp., received a Cloisonne vase as a housewarming gift from Mitsubishi Shoji Kaisha, Ltd., Tokyo, Japan, on the occasion of IMC's recent opening of its new administrative and research center at Skokie, Ill. At the left is B. Tannabe, president of Mitsubishi, who made the presentation to Mr. Ware. The Japanese firm is an importer of phosphate.

Wide 24" Conveyor and Twin Spinners Deliver Fast, Uniform Spreads!

Simple operation saves time and upkeep: set feedgate opening... start truck engine... start spreading!

The L-19S body is 6" higher and more heavily reinforced than other lime spreaders. This means bigger payloads, with less blowing and no body warp or twist. 45° angle side slopes help prevent bridging and permit a lower center of gravity, a more attractive appearance.

Typical of its quality construction are such exclusive features as: dust and moisture-sealed gears with Timken roller bearings, heavy-duty roller-type conveyor chain and an optional endgate that swings completely open for stock piling.

New Leader *Engine-driven* COMBINATION Spreaders are also available: Model L-22S with a 7.0 h.p. engine and Model L-32S with a 12.5 h.p. engine to deliver plenty of power for heavy applications of lime or fertilizer.

NEW LEADER Model L-14S LIME SPREADER

is a high quality rig with a low price tag!

Cut your in-the-field costs with this simple to operate, easy to maintain spreader. Merely set the feedgate opening, start the truck, engage the PTO and start spreading! Material is delivered to the twin spinners over a wide 24" conveyor. Also available with a center dump for stock piling.

New Leader Engine-driven lime spreaders: Model L-52S has a 24" conveyor and is built for heavy-duty use. Model L-62S with a 30" conveyor is available for widespread applications. Both spreaders can also be used for fertilizer.

NEW LEADER L-42S Mobile Blender Accurately Blends and Spreads 3 Fertilizers At the Same Time!

Permits the operator to control both the amount of spread and ratio of 3 fertilizers depending on varying soil conditions! A 7 h.p. engine drives the twin spinners at a constant rate. A 36" belt-over-chain conveyor is powered from a driveshaft drive and synchronized to truck speed.

Ask Your Nearest NEW LEADER Distributor for a Demonstration!

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IOWA—Badger Body Mfg. Co., Omaha
Snyder-Meylor Co., Sheldon
Wendler-Kraus Eqpt. Co., Inc., Cedar Rapids
KANS.—Perfection Truck Eqpt. Co., Wichita
Perfection Spring & Eqpt. Co., Kansas City (Mo.)
KY.—Mulzer Brothers, Tell City (Ind.)
MD.—Bohr Spreader Service, Inc., Harrington (Del.)
MICH.—Goes Seed & Eqpt. Co., Saginaw
Emmert Trailer Corp., Elkhart (Ind.)
Ostrom-Johnson Co., Rice Lake (Wis.)
Riedy-Manner Truck Eqpt. Corp., Toledo (Ohio)
MINN.—Snyder-Meylor Co., Sheldon (Iowa)
Ostrom-Johnson Co., Rice Lake (Wis.)
MISS.—A. P. Lindsey, Distr., Inc., Jackson
MO.—Koste Mach. Co., Inc., Robertson
Perfection Spring & Eqpt. Co., Kansas City
NEB.—Agrifirst Chem. Corp., Lincoln
Snyder-Meylor Co., Sheldon (Iowa)
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The Current Feed and Livestock Picture

A look at the Kentucky feed tonnage totals by a feed control official indicates trends in feeding and feed manufacturing which affect all states

By Bruce Poundstone
University of Kentucky

EDITOR'S NOTE: This article is from an address by Mr. Poundstone at the recent Kentucky Feed Conference held at the University of Kentucky. The author is head of the department of feed and fertilizer control at the university. He points out that feed tonnage reports of the past five years reveal trends toward custom milling and other changes in the feed industry. He states that "the manufacturer of mixed feed is as vital a part of our economy as baseball is American," and states further that the feed man's future lies in doing a good, economical job with business he now has or by fitting into the pattern of integration, "either as a partner or a primary leader in it."

Farmers in Kentucky have bought more than 500,000 tons of commercially-mixed feed and straight feed ingredients each year for the past 15 years. During the period immediately following World War II, this tonnage exceeded 600,000 tons reaching almost 700,000 tons in 1951, 1952 and 1953. Since that time, consumption has lessened and stands today at around 600,000 tons. In round numbers, 450,000 tons of this is mixed feed and the remainder is sold as straight products.

Poultry feed (including turkey feed), at 203,000 tons, accounts for not quite one half of all the mixed feed sold and one third of all of the feed sold. A total of 107,000 tons of cattle feed, of which dairy is over 90%, accounts for half as much feed as poultry feed. Swine feed is third in importance with about 70,000 tons. Other types of feed of minor importance are horse and mule feed, feed for pets (dogs and cats), rabbit feed, sheep feed and mixed feed.

Wheat by-products (43,000 tons) lead straight materials with corn products (31,000 tons) second in importance and soybean oil meal third. Others in descending order of importance are molasses, animal products, cottonseed meal, distillery by-products, oat products and alfalfa meal.

Interesting Trends

Reviewing these data for the past five years, one gleams some trends that may be of interest. The tonnage of poultry feed has changed but little, yet within the poultry picture, changes have taken place.

The number of chickens, not including broilers, has been declining since 1944. At that time there were 14 million chickens on farms in Kentucky. By 1957 this was down to 9 million and in 1958 has dropped to less than 8 million.

Before and during World War II, turkey numbers were declining in Kentucky, reaching a low of less than 50,000 birds. Numbers have risen since 1950 and seem to have stabilized somewhat, although there was a sharp decline from 1957 to 1958.

In spite of these declines in poultry numbers, the feed tonnage has held up because of continued increases in broiler numbers. This has skyrocketed since 1950 and although Kentucky produces only about 10% of all broilers in the U.S. (Georgia produces roughly 17 times as many birds as Kentucky), what Kentucky produces has kept the tonnage of poultry feed up. It is estimated that 25% of all of the poultry feed sold in Kentucky is for broilers, or a little over 50,000 tons.

It was mentioned that Kentucky produces one seventeenth as many broilers as did Georgia last year. Georgia is our leading broiler state. Kentucky produces about as many birds as does Ohio, less than half as many broilers as Indiana, twice as many as Illinois. West Virginia, Tennessee and Missouri all lead Kentucky in broiler production, and Virginia is ahead of Kentucky with three to four times as many broilers produced.

Dairy Figures Misleading

Commercially-mixed feed for dairy cows seems to have declined in the past five years. The number of cows for milk in Kentucky, though the trend is slightly upward, has changed but little in the past 10 years. Nationally, dairy cow numbers have declined. This has not been true in Kentucky because its agriculture has been changing from crops to feed roughage-consuming livestock.

Why then, if dairy cow numbers are as high, or slightly higher than previously, has dairy feed consumption declined? It is my belief it hasn't declined. But the way the feed is supplied has changed. The rise of custom mixing in Kentucky has taken place during this same period. Custom mixing appeals first to the dairy farmer. Dairy feeds are being manufactured now in larger proportions to the farmers' order than previously, by custom means.

Feeds for swine have shown a significant upward trend in the last five years, rising from around 45,000 tons to 65,000 tons. This is attributed to two things. First is hog numbers. Hog numbers in Kentucky generally follow U.S. trends. This was up during the war period and declined to a low in 1954 of 850,000 in Kentucky. In 1957, the number reached 1,239,000. A 50% increase in the number of pigs would naturally be reflected in the consumption of feed.

The second reason for an increase in swine feed tonnage is that farmers are gradually becoming more and more dependent upon mixed feed for this class of livestock and this is tending to push the tonnage of swine feed upward.

Horse and mule feed continues its downward trend due to the declining number of animals that has been going on steadily since 1920.

Molasses Increase

One more significant trend is the increase in the sale of molasses. This has jumped from less than 3,000 tons in 1954 to over 16,000 tons in 1957. The future tonnage of molasses depends upon supply and price. We now have channels of distribution well-established in Kentucky.

The relationship of the number of tons of mixed feed from mills outside of Kentucky to the tonnage manufactured and sold in the state remains about the same with slightly less than half the mixed feed sold manufactured within the state. There probably is a slight edge in favor of the out-of-state tonnage. This has been true for many years.

There are no data on the amount of feed that is "custom" mixed. Four or five years ago the number of such operations was growing rapidly. Today, farmers in Kentucky generally have access to a custom mixing plant in practically all sections of the state. The total number of such custom mixers seems to have reached a peak.

In the past year, 15 such plants either went out of business or changed hands. However, they were replaced by 14 others, showing a loss of one custom operator. There are today 343 such mixing operations in

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A.	32	21	11	28	28	0	100%
B.	95	76	19	112	108	4	79%
C.	80	34	46	68	55	13	72%
D.	68	52	16	68	64	4	78%
E.	74	38	36	79	72	7	81%
F.	83	69	14	78	76	2	85%
G.	60	34	26	44	39	5	81%
H.	36	27	9	28	26	2	77%
I.	16	11	5	16	15	1	80%
J.	32	16	16	28	25	3	81%
K.	48	41	7	60	59	1	86%
	624	419	205	609	567	42	79.5%

INDICATION OF SEVERITY OF INFECTION

Degree	1st Test	2nd Test
Slight	94	30
Infected (Mastitis)	66	9
Chronic (Mastitis)	45	3
Total	205	42

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Feed for Thought

By J. R. LINSNER
Product Protection

Throughout a year's production the average feed manufacturer pays many thousands of dollars for vitamin A—either in his vitamin premixes or purchased by the drum.

He places heavy demands upon this important insurance factor in his feeds by mixing it into high mineral supplements where the vitamin A is exposed to oxidation. He puts the vitamin A into high molasses feeds where the excessive moisture serves to accelerate its destruction. He subjects it to the pelleting process where temperatures may run to 180 to 200 degrees and steam is often used which further adds to the destructive processes. He adds the vitamin A to dog foods and expects it to maintain itself at protective levels for months at a time, set on a grocer's shelf.

The feed manufacturer expects the vitamin A in his feed, for which he has paid many dollars, to perform equally well under all of these varying conditions and yet, how many feed manufacturers purchase their vitamin A like soybean oilmeal or grain, on the basis of price alone and do not consider the stability of the product in the wide range of conditions under which it will be used.

Not every vitamin A product will perform equally well under all of these conditions. Some will remain stable in ordinary meals or mashes but pelleting heat, pressure and moisture will destroy them. Others may withstand the stress of pelleting but fail miserably in mineral feeds or highly mineralized supplements.

Not every vitamin A is completely water soluble. For this reason not every vitamin A can be used in water soluble products for administration in the drinking water of poultry or swine or in milk replacers for calves.

Many vitamin A products offered to the feed industry today do not remain dispersed throughout the feed and assure complete fortification of each and every pound of feed because of the smooth nature of their coating. Some will separate out after mixing, particularly if they are run through an auger system or subjected to bulk handling and jostling in a bulk delivery truck.

Ask the supplier of your vitamin A if his product will remain stable during pelleting, in the presence of minerals or in high moisture feeds. Will it remain dispersed throughout the feed or sift out after you've done a good job of mixing. Are you getting the product protection you're paying for?

J. R. Linsner
DIRECTOR OF TECHNICAL SERVICE
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TABLE 1. Estimated Tonnage of Sales by Class of Feed, Kentucky, 1957

	Tons
Mixed feed:	
Calf feed	3,723
Cattle feed	8,635
Dairy feed	95,008
Dog and cat feed	8,710
Horse and mule feed	12,115
Mineral Feed	5,606
Pig and hog feed	66,909
Poultry mashes	175,748
Rabbit feed	1,835
Scratch feed	12,835
Sheep feed	776
Stock feed	4,909
Turkey mashes	14,290
Miscellaneous mixed feed	13,916
Total mixed feed	425,095
Straight materials:	Tons
Alfalfa products	812
Animal products	11,851
Barley products	294
Brewers products	477
Corn products	31,236
Cottonseed products	10,530
Distillers products	3,328
Linseed and flax products	335
Molasses	16,786
Oat products	1,642
Soybean products	22,065
Wheat products	42,820
Miscellaneous products	5,686
Total straight material	147,862
Grand total	572,957

Kentucky. Twenty-four of these are portable mills.

Speaking of the number of feed plants serving Kentucky, there are 702 feed mills having registered feed for sale in the state of Kentucky. Out-of-state feed companies registered to do business in the state number 391 and in-state mills number 311. There are 8,169 separate feeds registered for sale in the state of Kentucky.

Feed Manufacturer "Vital"

No one needs to look at the future of the mixed feed business in Kentucky with misgivings. The manufacturer of mixed feed is as vital a part of our economy as baseball is American. More and more farmers will depend upon the services of the mixed feed business. Poultry feeding is completely dependent upon prepared feed. The feeding of swine is moving in that direction.

Economic production of poultry and eggs and pork is dependent upon careful formulation and mixing of so many micro-nutrients and drugs in very small quantity that careful formulation followed by accurate and thorough mixing will determine success or failure in production. There are over 40 drugs now available to the feed mixer to select from in formulating today's feeds. More are being added to the list constantly. The need for your services is assured, not only in the manufacture of feeds of this type, but others as well.

The feed man's opportunity for the future rests in his ability to supply the needs of the feeder. Opportunities for expansion in feed tonnage rest upon two things. The first is to feed the numbers of birds and animals already considered a part of our agricultural economy; in other words, the business that is already here. The company that does a good economical job will have whatever share of this business it is best able to serve. One may ask, "How about expanding markets for feed by expanding the number of livestock and poultry?" This will be hard to do, but might be done in certain special areas, but by and large there is nothing in the picture that would indicate we are to expect large increases in poultry or swine and dairy production under normal circumstances.

Integration

The second front or opportunity is through what we now know as integration or agribusiness. This has been viewed with alarm by some, but is now recognized to be the kind of thing we have been doing for many years in some areas of agriculture as well as other lines of business. It is the tying together of all phases of production and distribution into one closely-knit, organized whole.

This type of operation is with us whether we like it or not and the expansion or contraction on a grand scale in the feed business will be dependent upon the ability of the feed manufacturer to fit into this pattern, either as a partner or as a primary leader in it. Take egg production, for example. This is just getting started and is now possible because new methods of handling birds, feeding, handling and shipping eggs have suddenly reached the point where quality eggs are now only 24 to 48 hours from the hen to table even though the hen may be in Iowa and the customer in New York City. The egg is integrated from nest to table. And the nest will be wherever the farmers and organizations come up with the lowest costs, the selling outlets, and the best job of selling the best product.

After a while, quality will lose much of its competitive advantage since most of the producers will have quality. Then it will simply be a matter of economics and service. There is no reason why this type of expansion could not come to Kentucky; but to do so would require an ambitious program. A hatcheryman, egg buyer, feed manufacturer, any one of these or all three together could lead in this. But whether we compete successfully with some Virginia company, or Tennessee company, or Mississippi company, or midwestern company will depend not upon closeness to market or ideal climatic conditions so much as who can do the best job. A good job will mean more feed tonnage.

There seems to be no reason why this cannot and will not be applied to all phases of production in the livestock field and will be applied into some phases of it in the immediate future. Our chances in Kentucky are as good as anywhere else if we but grasp the opportunity. Failure to do so simply means the market for this expansion in the feed business will go elsewhere.

TABLE 2. Estimated Tonnage of Feed Sold in Kentucky Beginning With 1940

1940	353,138	1949	607,255
1941	347,055	1950	584,441
1942	416,805	1951	612,946
1943	630,438	1952	648,800
1944	663,039	1953	662,267
1945	671,350	1954	566,229
1946	647,661	1955	541,536
1947	582,375	1956	591,921
1948	634,000	1957	572,957

TABLE 3. Percentage of Feed Samples Meeting the Guarantee in Kentucky Since 1948

1948	56%	1953	77%
1949	68%	1954	78%
1950	70%	1955	81%
1951	79%	1956	78%
1952	78%	1957	73%

Three New Salesmen Join Pratt Company

JUNCTION CITY, KY.—Three new sales representatives for Pratt Laboratories, Inc., Junction City, were introduced at the firm's annual fall midwest regional sales meeting in Chicago.

George Shaban, George Porter and Ralph Ray were introduced at the meeting as Pratt sales representatives in Illinois, Kentucky and Ohio, respectively. Mr. Shaban formerly represented the Dr. LeGear line, and Mr. Porter has been on the sales staff for Moorman supplements in Kentucky.

According to Richard H. Shanaman, president of the Pratt company, three new products for the company's animal health line were also introduced at the meeting. He explained that with the three new products the company is continuing to implement the new Pratt marketing program, which is designed to provide dealers with a single source of supply for a complete animal remedy inventory.

The company's plans for promoting these new products were explained, and salesmen were given a timetable for introducing each product to their customers.

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7. Servicemen available 24 hours — no charge to dealer or feeder.
8. Program designed so dealer makes good money.
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RUSSIAN AGRICULTURE

Observations from a Recent Tour of Agricultural Locations in the U.S.S.R.

By Robert C. Wornick
Chas. Pfizer & Co., Inc.
Terre Haute, Ind.

EDITOR'S NOTE: The accompanying article provides an interesting look at Russian agriculture, as seen by the author in a recent visit to the USSR. From the observations which he and others on the tour were permitted to make, Mr. Wornick has recorded a good deal of information and statistics on the status of Russian agriculture. Mr. Wornick, a chemical engineer, is head of the chemical laboratories of the agricultural research and development department of Chas. Pfizer & Co., Inc., at Terre Haute, Ind. His trip to Russia was made on his own time as a private citizen and was not company-sponsored. The observations and opinions expressed in the article are his own.

During the period from June 13 to July 14, the writer traveled about 15,000 miles on a tour of Europe. About 3,500 miles of this total were covered in 10 days behind the iron curtain. Our group of 24 men from the Midwest were mainly farmers. However, there were also a few representatives of the feed industry, farm equipment dealers and a veterinarian. The route included Belgium, Sweden, Russia, France, Germany and England. A few impressions of the Russian agricultural scene are offered below.

Before getting into details, let me emphasize that we did not get a picture of "typical" Russian agriculture. The few agricultural visits on our tour were obviously "selected," and requests to travel out into nearby rural areas during our free time met with little success. Although our trip was allegedly a "farm tour," only four locations of an agricultural nature were visited during the entire 10 days. This is in contrast to the detailed farm tours arranged for Russian groups visiting this country. Imagine the indignation in the Kremlin if a Russian agricultural delegation saw only four farms or related installations on a 10-day tour.

To appreciate more fully the Russian scene today, one must consider that only 40 years ago, about 70-80% of the population were illiterate, rural folk. Tremendous progress has been made in the fields of education and industrialization since then. In any "crash program," advances are generally in limited fields, and other areas of endeavor are retarded due to lack of priority. In Russia, it is consumer goods that are conspicuously lacking, and this is reflected in the standard of living.

Mention of red tape and bureaucracy immediately suggests our federal government. Try to visualize a government which owns and regulates all industries; sets all wages and prices; buys all raw materials and sells all products; controls all printing of books, papers and magazines; regulates all transportation, construction, education, radio and TV, travel and even entertainment. All these and many more functions of government are planned and regulated for 200 million people in an area three times that of the U.S. and in more than a dozen different languages. This is Russia's fantastically complex problem today, and explains her lack of progress in so many fields.

Little Manufactured Feed

Since private industry is nonexistent, competition as we know it is absent. This is obvious in the agricultural field. If prices are all government fixed, and produce must be sold to the government, there is little reason to try to market poultry a week earlier or swine a month earlier. Carefully balanced manufactured feeds are conspicuously absent. The directors of the two farms we visited both professed knowledge of the value of supplementary vitamins, antibiotics, hormones and drugs. However, there was no indication of their being used. In fact there was little evidence of any appreciable manufactured feed industry.

The collectivization of agriculture was undoubtedly one of the most actively resisted phases of Communism. Many peasants slaughtered their animals and left crops unharvested, thinking that the new government would reconsider and not let them starve. No one will ever know how many millions were killed, died of starvation, or deported to slave labor camps in Siberia as a result of noncooperation under the Stalin regime. There is still reported to be a shortage of livestock today in the U.S.S.R., partly as a result of earlier resistance to collectivization. An organized broiler or beef cattle industry as we know it is a goal for the future.

By our standards, the average worker or farmer is in poor financial straits. The six-day week is standard, and work is hard due to lack of mechanization. High prices and low wages force both wife and husband to work to support the family. The propaganda about "equality of sexes in the USSR" is used as a blind to divert attention from the inefficiency in every industry which necessitates such excessive amounts of manpower.

High Prices

Consider, for example, an average truck driver who earns $50 (200 rubles at par) per week. On entering the stores, all of which are government owned, he is faced with prices such as the following in the Leningrad area:

Eggs, 25¢ each
Oranges, 50¢ each
Butter, $3.10 lb.
Rye bread, 75¢ a loaf
Milk, $1 qt.
Cheese, $3.25 lb.
Bacon, $2.37 lb.
Sugar, $1.37 lb.
Cigarettes, $1 a pack
Shoes, $43-$116 a pair
Dresses, $90-133
Blouses, $51
Raincoats, $47-81
Rubber boots, $18
Neckties, $7.50
Men's suits, $450

We visited, near Kiev, a 2,300-acre collective farm of which about 1,700 acres were tillable. Three way crop rotation was reportedly used and the farm specialized in cattle breeding and in truck farming. Crop areas were set up as follows:

Truck farm, 220 acres
Lupine fodder, 200 acres
Potatoes, 310 acres
Rye and wheat, 450 acres
Grasses, 170 acres
Corn, 175 acres

About 300 families live on this farm. They are divided into a number of specialized teams to care for vegetables, or orchards, or corn, or dairy cattle, etc. This farm reportedly had 395 cattle (of which 170 were dairy), 360 swine including 40 sows, 102 horses and 1,200 hens. Very little machinery was in evidence and there were numerous horse drawn wagons. Animals were seen being watered by hand buckets from a well.

All land is government owned, but each farm family may "have the use of" about ½-1 acre. They may own a horse, a cow, two calves, a sow, a goat, chicks, bees, etc. Farmers are paid both in cash and in kind. Labor is figured in "work day units." Individuals may earn 30-80 units per month depending on performance against established work quotas. Total income and yield are divided by total units for all workers and proportioned out accordingly. Net income per farm family is very low, and

Before . . . . . and . . . . . During

Robert C. Wornick, author of the accompanying article, apparently is one of those persons who believes that "when in Rome (or Russia), do as the Romans (or Russians) do." At any rate, he is capable of adapting his attire to the local situation. On the left above, he is pictured as he is usually seen by his associates and friends in the feed industry. On the right, he is wearing a typical Russian hat in a picture taken during his tour of Russia.

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everyone we saw on this farm was poorly dressed. Both the farm buildings and farmers' huts with thatched roofs were badly in need of maintenance work.

Machinery

The Kiev Repair and Technical Station was also visited. These stations were called "Machine and Tractor Stations" under the Stalin regime. Under the de-Stalinization of agriculture, the collective farms may reportedly now own their own equipment. The above station served 13 local collective farms having a combined total area of 47,500 acres of which 35,000 acres are arable. To date about 80 tractors and 30 combines have been sold by this station to the surrounding farms, which have 3-5 years to pay. Such stations also supply parts, maintenance work, lubricants, fuel, fertilizer and insecticide. Since some farm machinery is not economical to purchase by single farms, it is rented out by the station.

A large tractor factory was visited in Kharkov which reportedly employed 26,000. Their first 30 H.P. gasoline tractor was built in 1931. The production of 52 H.P. caterpillar tractors began in 1938 and continued again after 1945. In 1950, production began on the 54 H.P. Diesel caterpillar model, and in 1956 on a small 14 H.P. rubber wheeled model. These models had five forward speeds. However, they are apparently not producing any tractors which operate on natural gas.

At the time of our visit, the plant was operating two full shifts. This seemed surprising during peacetime and reflects the shortage and inefficiency of manufacturing capacity. Production per two-shift day was reportedly 80 large and 80 small tractors. Average pay for machinists was $50 a week. At least half of the workers were women. It was usual to see girls in their late teens running lathes, milling machines, drill presses, etc.

Since 1957, the larger models are fitted with a special hydraulic system so that only one operator is needed for tractor controls and auxiliary equipment. The small tractor has one cylinder, a speed of 8 m.p.h. and costs about $3,000. The large 54 H.P. model has 4 cylinders, a forward speed of 5 m.p.h. and costs about $4,250.

State Farm

The Ukrainian State Farm near Kharkov was also visited. The state farms are government-operated and are a sort of agricultural experiment station where new animal breeds and crop varieties are developed and tested. They serve as models for the collectives to follow, and their employees are far better off, being paid in cash only. The collective farm in contrast is centered in a town or village and the residents work the land jointly and share the cash income and crops in proportion to their labor contribution.

This state farm covered 18,000 acres and specialized in breeding studies on cattle, sheep and swine. They had 1,700 cattle, of which 700 were milkers and 52 bulls. Four cattle breeds were under study as follows:

1. Libidinskaya—Declared to be a new breed since 1950. Produced from crossing Brown Swiss with a local breed called "Gray Ukrainian." Cows average 1,600 lb. wt. and produce milk with 4% butterfat. Bulls average 2,000-6,000 lb. weight.

2. Simental — A local Ukrainian breed, bigger and heavier than Libidinskaya and giving comparable butterfat level. Both beef and dairy animals.

3. Red Steppe—Only a dairy breed, reddish brown in color, from southern Ukraine. Smaller size animals as cows average 1,275 lb. and bulls average 1,650-2,000 lb. in weight.

4. Gray Ukrainian—An old local breed used mainly for beef and not for dairy due to low milk production and poorer butterfat levels. Commonly crossed with Brown Swiss to produce new Libidinskaya.

The swine breeding work is done with 5,000 head of each of two breeds as follows:

1. Large White — Like English White, are half lard and half bacon type. Sows average 550-600 lb. and boars 770-880 lb. Twelve pig litters are reportedly common.

2. Mirgorodskaya — Smaller size lard type animals. Weight 175-225 lb. in six months and 330-350 lb. after 10 months of age.

Sheep breeding studies on 6,000 head are underway on such breeds as Caracul and Prekos.

The crops included 2,500 acres of wheat, 3,700 acres of corn, 800 acres of orchard plus oats, barley and other cereals and vegetables. They also had ducks, geese and 400 beehives. Farm machinery reportedly included 65 tractors, 54 trucks and 31 combines. There were 420 permanent employees, of whom 70% worked on cattle breeding.

As on collective farms, the workers have use of ½ acre or so for their family and can raise a few crops and keep private animals. Average base pay is $50-$60 weekly and work quotas govern income. Girls must milk 24 cows each, tractor operators must cover 17 acres, and swine herds must insure a minimum number of animals and fixed weight gains.

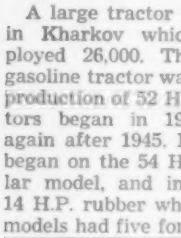
Feed Mixing

This farm had limited feed mixing facilities and an old, horizontal die type pellet mill for ⅛-in. pellets. They stated that B vitamins plus A and D and trace minerals were added to the feed in solution form. Antibiotics such as penicillin, streptomycin and Aureomycin were also reportedly added in this manner.

Equipment was also available for cutting and drying lucerne hay. They boasted that field cured hay averaged only 19 mg. carotene/kilo (14,000 units/lb.) while their improved tube dried lucerne meal averaged 96 mg./kilo (73,000 units/lb.).

Cows are kept in shelters six hours and let free for 18 hours. Three milkings per day were found to give 15%

(Turn to page 22)



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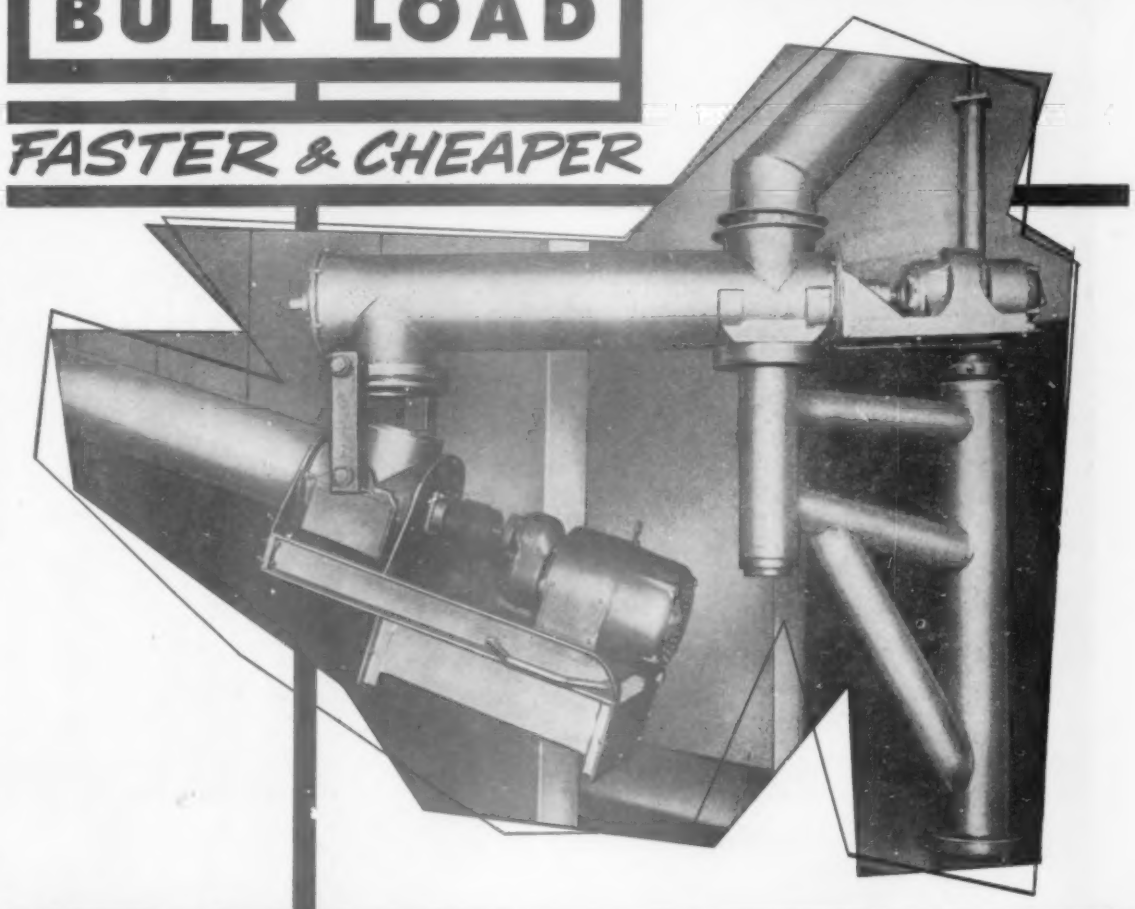

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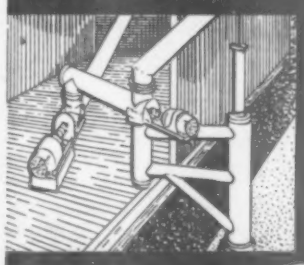

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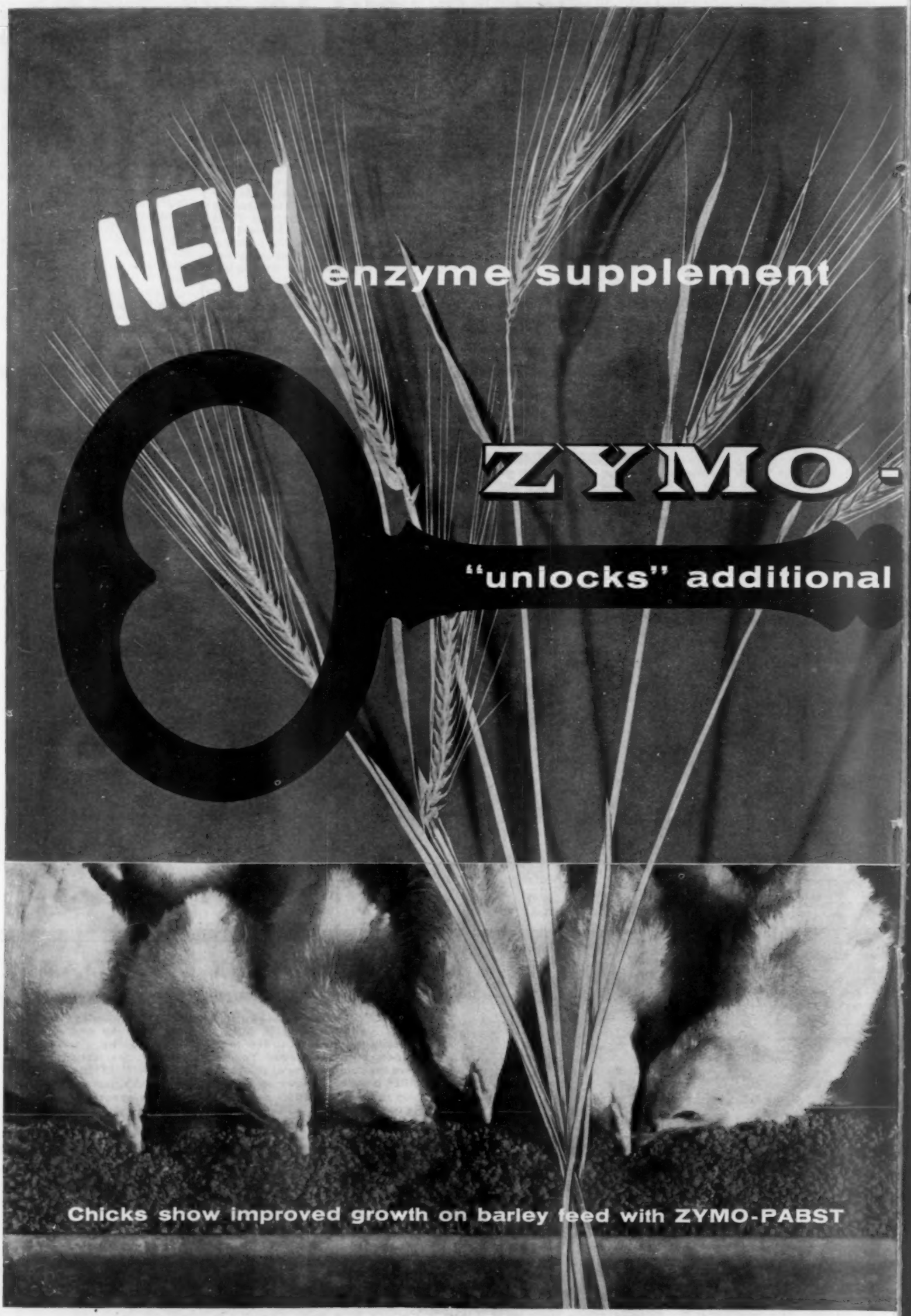
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The cost of fortifying a ton of complete feed containing 1,000 pounds of barley with ZYMO-PABST is less than one-tenth of one cent per pound. This represents a great economy to feed manufacturers in corn-deficient areas or when barley is a better buy than corn.

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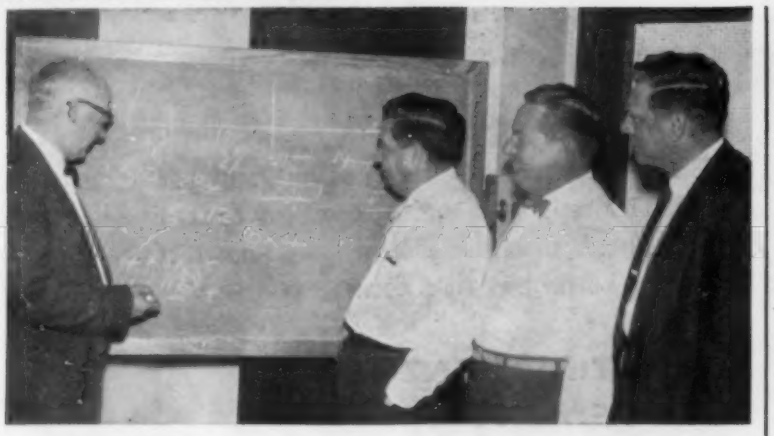

SCOT, USDA OFFICIALS CONFER—Discussions of chemical measures for the nutritive value of cottonseed meal took on an international flavor when Dr. John Duckworth, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland, conferred recently with U.S. Department of Agriculture scientists at the Southern Utilization Research & Development Division, New Orleans. Dr. Duckworth participated in a large cooperative experiment in the United Kingdom for testing protein concentrates, patterned after the cooperative experiment on cottonseed meals in which the Southern Utilization division took part. In a seminar given at the southern division, he reported findings similar to those of the southern scientists that a measure of lysine, or the available lysine content, appeared to be the best method developd so far. Pictured (left to right) are: Dr. Duckworth, Dr. V. L. Frampton, Southern Division; Dr. A. B. Watts, Louisiana State University, and Dr. A. M. Altschul, Southern Division.

more milk than two milkings. About 25-30 lb. of hybrid seed corn used per acre. Maturity time is 140-150 days. Corn and soy are often grown together in the same field for silage. Winter wheat yields reportedly averaged 2,800-3,100 lb./acre.

Not far from central Moscow is the 500-acre Agricultural Exposition, resembling a world's fair. Forty-six pavilions house agricultural exhibits of which about half display animals and crops peculiar to each member republic or geographical area of the U.S.S.R. The remainder display each species of livestock and poultry, plus horticulture, agriculture, floriculture, machinery, etc. Each pavilion is crammed with photos, samples and statistics. In the atomic energy building, duplicate models of the sputniks may be seen.

Statistics

A number of selected statistics from the various pavilions are given below for their general interest. It is emphasized again that it is impossible to verify these, and they should be considered accordingly.

1. No perennial wheat, rye or barley varieties now in use.

2. U.S.S.R. cattle population — 66 million (32 million are dairy).

3. National average milk production—1,800 kilos/cow.

4. Average wool yield from Rambouillet Cross—17 lb.

5. Raw wool sells for about $2 lb. in Siberia.

6. Ukraine produces 60% of all winter wheat.

7. Ukraine produces 3 million tons of refined beet sugar annually.

8. Russians claim first artificial insemination of ewes.

9. Most of U.S.S.R. cotton raised in Uzbekistan.

Agriculture Weak Point

Agriculture is one of the weak points in the Russian economy. It is estimated that about 50% of the population are engaged in agriculture. However, natural factors such as light rainfall, frozen areas, forests and deserts limit arable land to 20% or less of the entire U.S.S.R. Lack of adequate, modern mechanization necessitates using 4-5 times the labor required for similar operations in this country.

The Russian collective farmer has little incentive to increase yields. Little recreation time is available to enjoy any of the high priced goods he might be able to buy with an extra bonus. John Gunther, in his new book "Inside Russia Today" (Harper & Brothers, New York), sums up the present day situation succinctly as follows: "The government must, in order to improve the standard of living of the country as a whole, get more out of the farmer, but at the same time is unwilling or unable to release more consumer goods to the farmer in order to stimulate him to more production."

Feed Firm Building Grows Old with City

ELKHART, IND.—Elkhart is 100 years old this year, and a good part of its history is tied up in the building occupied by Martin Feed Store & Mill Co. It was the city's original postoffice.

Erected in 1863 by a group of Elkhart business men who formed a pool to pay the $14,000 construction costs, the building was once described as "the finest building between Toledo and Chicago."

The postoffice remained in the building until 1889, and the building was then used by a succession of businesses until it became a feed store and continued in that capacity.

In later years, the firm expanded into the lawn and garden supply business.

Martin Feed Store & Mill Co. has been a part of Elkhart 42 years, and it is the city's oldest existing store in this type of business. Walter E. Hutschenreuter, president, and Mike Maloney, vice president, also expressed "pride in the fact that we are the oldest Purina dealers in this area."

Dr. Malcolm Renfrew To Teach at Idaho

MOSCOW, IDAHO—Dr. Malcolm M. Renfrew will become professor of chemistry and head of the department of physical sciences at the University of Idaho effective Feb. 1, 1959, it has been announced by Dr. D. R. Theophilus, university president.

Dr. Renfrew has been director of research and development for Spencer Kellogg & Sons, Inc., Buffalo, N.Y., since 1954, and has served in similar capacities for DuPont and General Mills.

He will succeed Dr. William E. Cone as department head. Dr. Cone, who has been a member of the faculty for 34 years, will relinquish his administrative duties as required for those reaching 65, but will continue as a professor of chemistry.

Joins Seed Group

SACRAMENTO, CAL. — John W. (Jack) Mathys has been appointed to fill the newly-created office of executive vice president of the California Seed Assn., announced June Peck, association president. Mr. Mathys recently retired from Northrup King & Co., where he was vice president in charge of the garden seed division.

FIRE DESTROYS ELEVATOR

HENNESSEY, OKLA.—Fire swept through a grain elevator here recently, destroying 5,000 bu. of grain and the elevator. Loss was estimated at $50,000 by the owner, Williams & Son Feed Co.

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you want to receive
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USDA Reports More Milk From 32% Fewer Cows

WASHINGTON — Even though there are 32% fewer milk cows in the U.S. now than in 1944, total milk production is 7% higher, according to a recent U.S. Department of Agriculture report.

The report said that expansion in the production potential of milk cows has been made possible by growing use of artificial insemination and use generally of bulls with the ability to transmit higher production potential to their offspring.

Also, animals have been selected for ability to consume larger amounts of feed, and apparently feeding rates have been increased to obtain the increase in milk production. "For instance, the amount of milk produced per pound of feed concentrates supplied per animal has been practically constant for the period that data have been collected on this subject," the USDA report explained. "There is a question, however, as to how much increased milk output is due to increased concentrate feeding and how much to increased quantities of improved roughages."

From 1947-56 average production of milk per cow increased approximately 1,000 lb. Moreover, the average weight of dairy cows in the U.S. has increased, probably about 100 lb., thus raising the feed requirements for maintenance purposes.

Over the 10-year period, the amount of feed concentrates fed per animal increased from 1,584 to 1,908 lb., a gain of 324 lb. Based on average requirements of feed nutrients per pound of milk, this increase would have been sufficient to account for nearly two thirds of the gain in output of milk from the larger cow.

Quantities of roughage fed per cow also have increased substantially, though to some extent, farmers have substituted increased feeding of hay and silage for pasture feeds in the last decade.

(The report pointed out that the above calculations necessarily assume constant quality of roughages, an assumption not valid because of the improvements in harvesting and preserving procedures, and that no data are available on average improvements in quality of roughages.)

Milk Production Trends

Witih regard to the question of future trend in rate of milk production per cow, pertinent observation may be made concerning (1) the upper production levels already obtained in the country, and (2) trends in rates in some other dairy countries of the world.

A significant number of commercial dairy herds within Dairy Herd Improvement Associations of the U.S. now produce an average of more than 15,000 lb. of milk per cow as compared with the average production for all cows of less than 6,200 lb. in 1957. The average production for all cows within D.H.I.A. averaged in 1957 over 9,000 lb. of milk, about 50% over the U.S. average for all cows.

Nevertheless, the annual rate of increase for D.H.I.A. cows has been nearly as high as for the average for all cows in the U.S., and higher than the averages for a number of states.

Conclusions on the basis of D.H.I.A. averages can not be wholly conclusive because of the steady rise in herd enrollments within the program.

Foreign Production

In a number of foreign countries the average production of milk per cow is in excess of the U.S. average. However, in no instance has the rate ceased to rise.

The largest increase over pre-World War II levels has been recorded by the United Kingdom; in 1957 their average was 77% over 1937-39, compared to the increase of 36% for the U.S. The average for 1957 for the United Kingdom was 6,800 lb., compared to the U.S. average of 6,200.

Among the foreign countries the highest rates currently are The Netherlands, 8,700 lb. per cow, Belgium, 8,400 lb., and Denmark, 8,100 lb.

Among individual states of the U.S., only California has exceeded an average of 8,000 lb., reaching 8,900 lb. in 1957. Wisconsin was second with 7,600 lb. In both of these states, moreover, the rate of increase has been accelerated in recent years.

"The above observations on trends in milk production rates per cow suggest that there is no reason to expect a falling off in the annual rate of increase in average production of milk per cow in the U.S. In fact, an increase may appear the more likely prospect, at least until the average reaches a much higher level," the USDA report concluded.

Canadian Egg Output Shows Slight Increase

WINNIPEG — Net production of eggs in Canada (excluding Newfoundland) rose 3.4% in July to an estimated 33,867,000 doz. from 32,757,000 a year earlier. This moved the January-July total up 0.8% to 265,102,000 doz. from 263 million.

July net production was greater than a year earlier in all provinces except Prince Edward Island, Quebec and British Columbia, while seven-month output was up in all provinces except the Maritimes and Quebec.

July net production by provinces was: Prince Edward Island, 478,000 doz. (513,000 a year earlier); Nova Scotia, 1,690,000 (1,685,000); New Brunswick, 639,000 (550,000); Quebec, 4,761,000 (4,902,000); Ontario, 14,689,000 (14,462,000); Manitoba, 3,029,000 (2,221,000); Saskatchewan, 2,644,000 (2,456,000); Alberta, 3,255,000 (3,079,000); and British Columbia, 2,682,000 (2,889,000).

January-July totals are: Prince Edward Island, 3,782,000 doz. (3,835,000 a year ago); Novia Scotia, 10,995,000 (11,251,000); New Brunswick, 5,008,000 (5,200,000); Quebec, 33,630,000 (37,975,000); Ontario, 110,115,000 (107,070,000); Manitoba, 24,169,000 (21,244,000); Saskatchewan, 26,965,000 (26,353,000); Alberta, 29,508,000 (29,369,000) and British Columbia, 29,930,000 (20,703,000).

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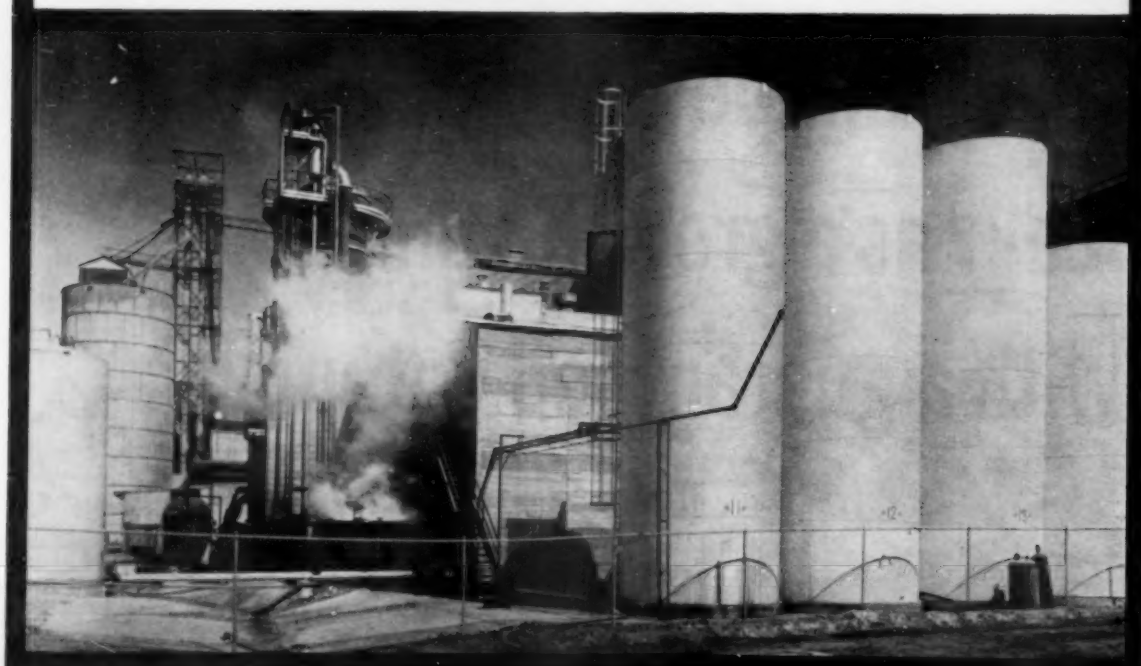

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SERVICE BULLETIN for members of the feed and poultry industries

The Diagnosis of Poultry Disease

Service to members of the poultry industry often includes assistance in diagnosing disease. "On the farm" diagnoses based on postmortem lesions, flock history and observation of key symptoms, are helpful both in determining the nature of a disease outbreak and in planning effective control and future prophylactic measures.

LABORATORY TESTS HELP CONFIRM DIAGNOSIS

Even the most experienced poultry pathologists resort to laboratory aids to supplement symptoms, history, and autopsy findings in establishing and confirming a diagnosis. These laboratory tests include:

- examination of blood or serum (rapid plate or tube agglutination tests for pullorum; hemagglutination inhibition and serum neutralization tests for Newcastle disease, C.R.D., and bronchitis);
- microscopic examination of sections of diseased tissues (A.L.C., fowl pox, encephalomyelitis);
- virus isolation (chick embryo inoculation for bronchitis and Newcastle and other virus diseases); and
- the culture and identification of bacteria (fowl cholera, fowl typhoid, pullorum, paratyphoid and others).

Submitting live birds to a state-operated or commercial laboratory for confirmation of a field diagnosis is vital to the success of a poultry disease control or preventive medicine program.

FLOCK HISTORY— A VALUABLE DIAGNOSTIC TOOL

Whenever possible, owners of farms or employees familiar with flock management procedures should be encouraged to bring birds to the laboratory in person. They should be prepared to supply information about flock history bearing on the cause or reasons for the spread of the disease. The following information might prove useful to the pathologist:

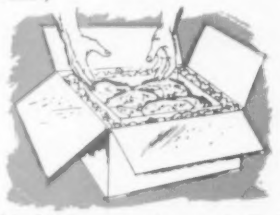
1. source of stock (pullorum rating, if known);
2. number of birds on farm (breed, strain, age);
3. number of birds affected by disease (number showing symptoms, mortality at start of disease, total mortality to date);
4. duration of disease;
5. characteristic symptoms observed (respiratory, digestive, nervous);
6. egg production before disease and at present;
7. feed consumption before disease and at present;
8. vaccination history;
9. history of previous disease outbreaks on farm (as well as on neighboring farms);
10. stress conditions that may have predisposed flock to disease (including errors in management);
11. drugs used to treat the disease (dosage or level of drug in feed); and
12. other drugs, including preventive levels of coccidiostats, antiblackhead compounds and antibiotics used on farm.

If servicemen or other feed industry personnel are to represent the farm operator, a flock history should be obtained from the flock owner.

SHIPPING SPECIMENS BY MAIL OR EXPRESS

There are times when a trip to a diagnostic center is out of the question for both service representative and farmer. Under these circumstances, live birds, carcasses, or tissues and organs from diseased chickens or turkeys can be successfully shipped via Railway Express or Parcel Post to the nearest laboratory. A letter containing the information listed above, plus the farmer's name, address, and telephone number, should be firmly attached to the container. Specify if collect calls will be accepted for prompt transmittal of diagnostic results. To assure delivery of birds or specimens in a condition that will permit proper processing and examination the following points should be kept in mind.

1. Select three or four live, mature birds or a half dozen chicks or poults and place them in well ventilated shipping crates, corrugated fiber egg cases or sturdy cartons. (Place an ample supply of moist mash at the bottom of the case or container if birds are to be in transit more than 10 to 12 hours.)



2. Ship birds or specimens via Railway Express or Parcel Post. *Do not* make any shipment that may arrive at the laboratory on weekends or holidays. Consult your nearest express or post-office for delivery schedules and information concerning possible restrictions on shipments.
3. Wrap carcasses* in heavy-duty wax paper or several layers of newspapers to prevent seepage. Place the material in a waterproof container and pack in a larger waterproof box filled with dry ice or regular ice and sawdust.
4. Pack diseased tissues in a small, wide-mouthed container fitted with a tight cover. Fill container with powdered borax, boric acid or a 10 per cent solution of formalin. Blood samples should be shipped as soon after drawing as possible, and preferably packed in a closed, refrigerated carrying case.

Medication of a diseased flock, based on a *tentative* diagnosis is better than hit or miss "shotgun" therapy. A *confirmed* laboratory diagnosis will permit pin-point treatment at a reduced cost and increase the value of the services offered to poultrymen by representatives of the feed industry.

Prepared for members of the feed and poultry industries in the interests of poultry health. Merck & Co., Inc., Rahway, New Jersey. Reprints of this article with blank reverse side suitable for imprinting and mailing are available on request.

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*It is not advisable to send birds that have been dead over a few hours; in fact it is best to kill birds just before shipment.

Double Check

Critical B Vitamin Levels in your

Chick Grower Rations

Vitamin	Total recommended levels (Gm./ton)
Riboflavin	4
Calcium Pantothenate	12
Niacin	25
Choline Chloride	1000
Vitamin B_{12} (mg./ton)	3

If you think that the vitamin content of your chick grower feeds is lower than any of the levels shown at left, stop. Check the energy content of the ration and then double check each individual vitamin. High calorie ingredients like corn, fats, etc. are poor sources of essential B vitamins and reduce feed consumption. Research proves that if one B vitamin is lacking others are very often lacking too.

Under these circumstances and appreciating that natural foodstuffs vary widely in vitamin content, it's just good formulating to double check all B vitamin levels every time you change your type or source of ingredients.

There's one thing you can be sure does not vary and that's Merck Vitamin Mixtures. Their vitamin content is absolutely consistent and disperses so uniformly in feed that every chick gets the right intake necessary for profitable growth.

Ask the Merck Man

Next time lack of stability in your feeds has you temporarily off balance, why not short cut the worry with a fast call to your Merck Man. In most instances his practical suggestions will be of immediate value in selecting proper diluents, overcoming high moisture, coping with water-soluble mineral salts and circumventing excessive milling.

If by chance the problem taxes his resources, he can throw into the fray the Merck technical service group with over 500 man-years of formulating experience. In unusual cases your Merck Man can even bring to bear the full weight of the industry's largest staff of research scientists.

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Michigan Reports on Tranquilizer Feeding

EAST LANSING, MICH.—A preliminary cattle feeding experiment testing tranquilizing drugs is under way at Michigan State University, according to a recent report from two Michigan Agricultural Experiment Station researchers.

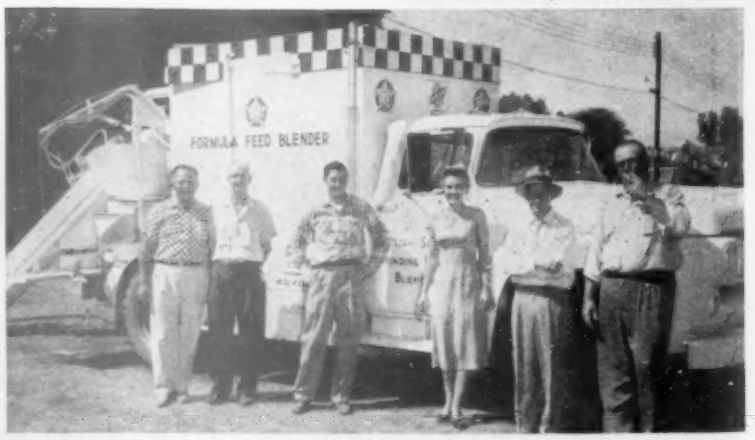
Dr. C. K. Whitehair, veterinary pathologist, and Dr. G. A. Branaman, animal husbandry department staff member, reported on progress in tranquilizer feeding research at the recent Cattle Feeders Day held on the university campus.

Most of the research to date indicates these drugs improve growth rate 8 to 10% and feed efficiency 4 to 6% in cattle feeding experiments, they reported. They said the stimulatory effect has been noted especially when the tranquilizers are used along with stilbestrol. The stimulatory effect has been noted at levels of 2 to 10 milligrams a day.

The exact mechanism by which these drugs improve growth and feed efficiency is not known, they said. In cattle, large doses are known to affect the central nervous system bringing about a nerve-calming effect or a diminished tension and anxiety.

In addition to improved growth and efficiency, they said, other proposed uses for these compounds in cattle operations are: (1) To reduce shrinkage and injuries in the movement of cattle. (2) To calm wild, nervous cattle for ease in handling. (3) To decrease tension and anxiety in weaning calves, starting cattle on feed, dehorning, castrating and branding.

"Practical applications for tranquilizers in cattle production seem very broad," the researchers reported. "The use of these drugs in cattle rations is still in the experimental state and until more basic information is available one should avoid using them indiscriminately."



FAIR VISITORS—On hand to greet visitors at the recent Nebraska State Fair in Lincoln was Miss Carrol Kucera, queen of the fair. Several of the visitors shown (left to right) are: John Hoff, Lincoln area Ralston Purina salesman; Jay Bliss, area representative for Barnard & Leas Manufacturing Co., Inc., Cedar Rapids, Iowa; Harvey C. White, manager of the mobile mills division of Barnard & Leas; Miss Kucera; Art Aden, manager of the Milford (Neb.) Farmers Union, and Charles Brockmyer, Hickman, Neb.

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☐ Electric Truck Hoist
☐ Chain Drag
☐ Corn Sheller with Blowers
☐ Combined Sheller-Cleaner
☐ Gyrating Cleaner
☐ Regular Corn Sheller
☐ Pitless Corn Sheller
☐ Corn Scalper
☐ Corn Cutter and Grader
☐ Corn Crusher-Regulator
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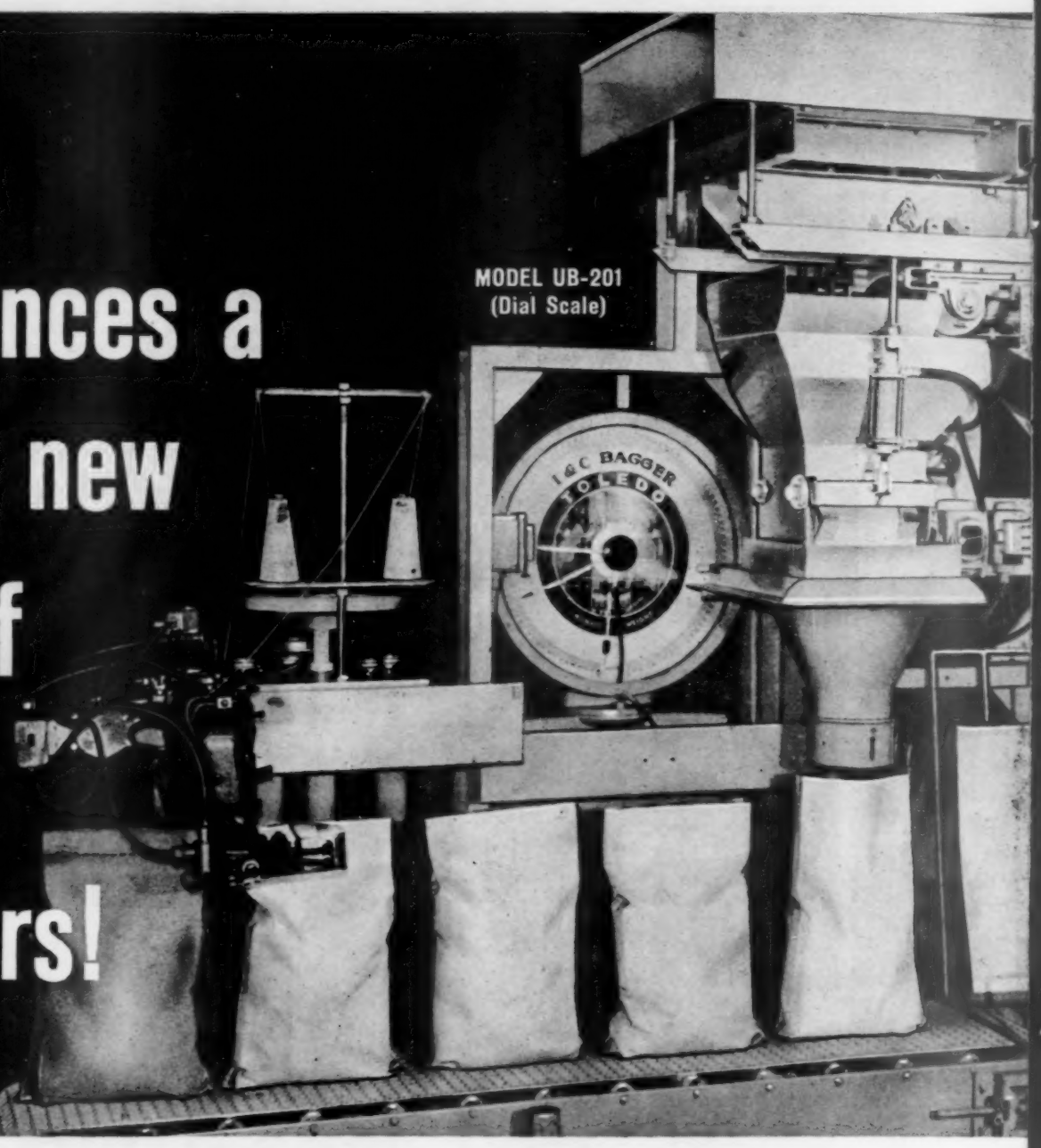
Union announces a brand new line of I & C Baggers!



Compact, mobile machines save space . . . both gross-weigh and net-weigh automatically!

Union's new "200" series I & C Baggers for feed and fertilizer packaging can do practically everything but tell time. But they can *save* you time. And plant space. And labor costs.

Each of the new models is completely automatic. Here are some of the advanced design features and operational advantages they offer you.

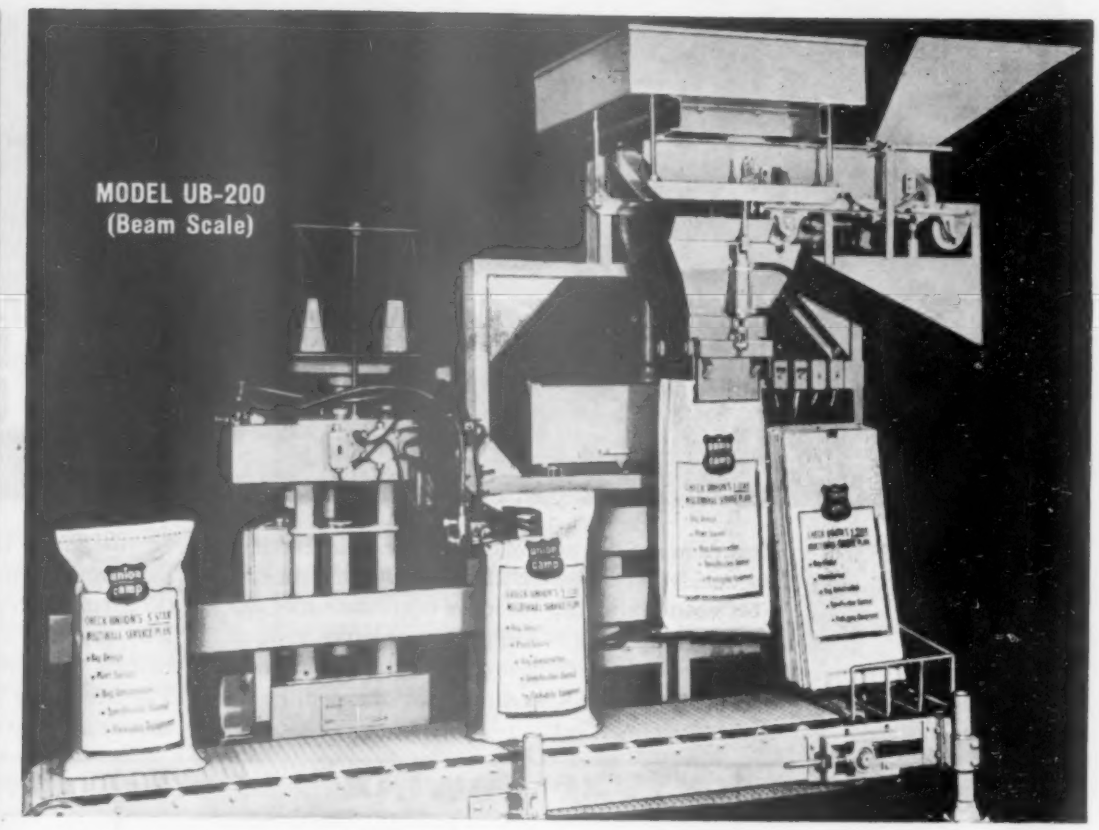
Gross- to net-weigh...in seconds! Models UB-201 and UB-200 come equipped with valve gates which enable you to gross-weigh *and* net-weigh. You can change over from one operation to the other in seconds by flipping a "net-weigh" selector switch and installing a spout mounting and spout which clamps easily on to the machine.

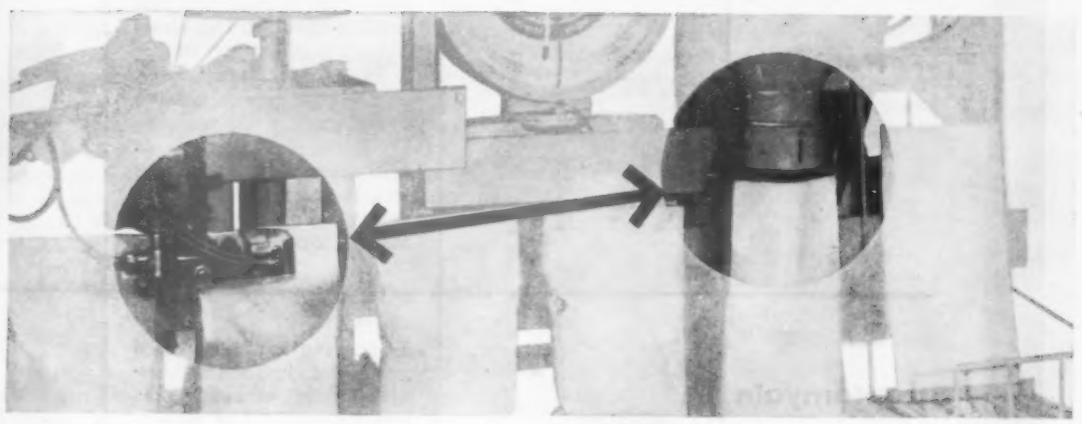
These new machines net-weigh 10 lb. through 50 lb. bags of granular fertilizer material and 10 lb. through 25 lb. granular feed material. As gross-weighing machines, they handle 80 lb. through 200 lb. granular fertilizer material and 25 lb. through 100 lb. feed material.

One-man or multiple-man operation. These new models are equipped with two mounting positions for the sewing head. When mounted closest to the bag filling point, one man can easily operate the bagger since the revolutionary new bag clamps free both hands to guide the filled bag through the sewing machine. When faster production is needed, the other mounting position allows space for an additional man to operate the sewing head.

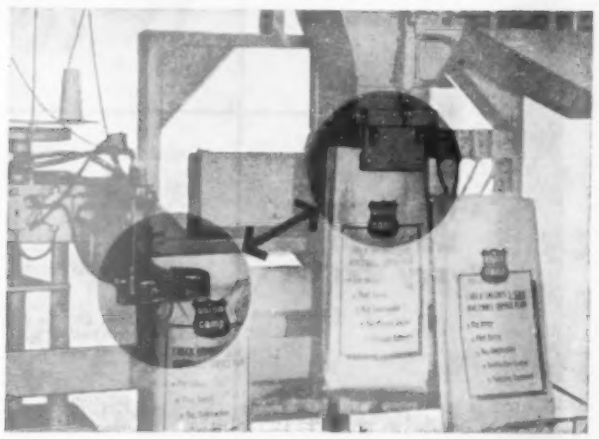
Space savers. Union's new I & C Baggers are excellent space-problem solvers. Models UB-201 and UB-200 require only 3½′ x 5′ of floor space and only 7′ above the sewing head conveyor. They also are equipped with wheels, whether mounted on a conveyor or mounting frame. They can be moved easily for perfect alignment with other equipment or to meet changing plant conditions.

Consistently accurate. Whether you use them to net-weigh or gross-weigh, the new I & C Baggers maintain the same weighing accuracy that has made the "100" series famous throughout the feed and fertilizer industries.





Two mounting positions for sewing head allow for multiple-man operation (above) or one-man operation (below).



Complete installation service. Installation of the new I & C Baggers is fast and simple. The machine is delivered factory assembled and can be installed within 2½ hours. Union's installation engineers—located within easy reach of your plant—do the complete job including an engineering layout and instruction of your operating personnel—at a surprisingly low cost.

Write for full details about Union's new line of I & C Baggers for feed and fertilizer packaging.

Union's well-known "100" series I & C Bagger. If you require net-weighing up to 200 pounds, I & C Baggers—Series "100"—are recommended. We'll be glad to survey your packaging operation, help you determine which model best fits your needs.

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Regardless of the turn of the profit cycle, fortifying rations with PRO-STREP is a sound investment. Feeds containing this effective combination of antibiotics help stimulate appetites, enhance growth and improve feed efficiency. PRO-STREP advantages add up to "Profit Insurance" for the poultry or livestock farmer.

Fit The Ration To The Farm–Not all herds or flocks require the same amount of antibiotic protection. On farms where the disease incidence is relatively low, growers can expect excellent results using rations fortified with as little as 25 grams of PRO-STREP per ton of feed. In the presence of disease or at times of stress, rations containing higher

	SWINE		CHICKENS *(Layer and Breeder Rations)*	
Penicillin		Penicillin is absorbed and carried through the blood stream to every part of the body to effectively check pathogenic, gram-positive organisms. Penicillin also stimulates feed consumption, enhances weight gains and feed conversion. Grower is able to market more uniform pigs.		Penicillin is absorbed into the bloodstream of the growing or mature bird. It is carried to every part of the body and is effective against harmful, gram-positive organisms. Penicillin is particularly helpful at times of stress in maintaining or increasing hatchability of fertile eggs.
Streptomycin		Effective for prolonged periods of time in the intestinal tract, streptomycin acts against the gram-negative bacteria so often responsible for bacterial enteritis ("necro"). *Streptomycin will not interfere with the action of beneficial intestinal flora.*		Streptomycin is slowly absorbed from the intestinal tract. It provides "crop-to-vent" protection against pathogenic, gram-negative organisms. Streptomycin will not interfere with the action of beneficial intestinal flora.
A PRO-STREP Level for Every Ration	**LOW LEVEL–25 Gm./ton.** Feed continuously to stimulate growth, improve feed efficiency, increase feed intake and promote better uniformity of gains. **MEDIUM LEVEL–50 Gm./ton.** Feed continuously until pigs are 50-75 pounds to: prevent bacterial swine enteritis; stimulate growth; improve feed efficiency; stimulate feed intake; and help promote better uniformity of gains. If outbreaks of enteritis occur, feeds containing 100 Gm. of PRO-STREP should be used. **HIGH LEVEL–100 Gm./ton.** To treat bacterial swine enteritis feed rations fortified with PRO-STREP for 4-5 days or until symptoms disappear. PRO-STREP at the 100 Gm. level also may be used until pigs are 50-75 pounds to: stimulate growth, improve feed efficiency, increase feed intake and assure better uniformity of gains.		**LOW LEVEL – 25 Gm./ton.** Feed continuously as an aid in maintaining or increasing egg production and to stimulate growth and improved feed efficiency. In the presence of disease, rations containing 100 Gm. are recommended. **HIGH LEVEL – 100 Gm./ton.** The following claims may be listed on your tags when PRO-STREP is fed at high levels to chickens: **a.** Reduce mortality and hasten recovery from C.R.D. **b.** Treat nonspecific infectious enteritis. **c.** Maintain feed intake and weight gains during C.R.D. and nonspecific infectious enteritis. **d.** Aid in maintaining or improving hatchability (of fertile eggs). **e.** Aid in maintaining or improving egg production. **f.** Prevent early chick mortality due to organisms sensitive to penicillin and streptomycin. **g.** Improve feed efficiency as related to egg production or weight gains. *Suggested feeding schedules:* **1.** Feed the first 10 days – then 3-5 days during, or immediately after, such stress factors as Newcastle disease or bronchitis vaccination, debeaking or housing pullets. **2.** Feed for the first 10 days and then for 3 days out of every week until birds are marketed. **3.** Feed continuously in case of disease outbreaks.

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Examine the **CLAIMS**–Check the **RESULTS**–
Compare the **COST** of PRO-STREP
with other broad-spectrum or single drug,
narrow-spectrum antibiotics.
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There is a Merck microingredient for your every formulation need. Ask the Merck Man about the complete line of antibiotics, vitamins, amino acids, multivitamin mixtures and coccidiostats with THE MERCK MARGIN OF SURETY!

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-STREP® dual-action

(a combination of procaine penicillin and streptomycin sulfate in a ratio of 1:3)

levels of PRO-STREP are required to cut disease losses and help maintain feed intake and the efficient production of meat or eggs.

There's a level of PRO-STREP best suited to conditions on the individual farm...a level of PRO-STREP that will produce the best possible results at the lowest unit cost.

Here's how the dual action of Procaine Penicillin and Streptomycin Sulfate in rations fortified with PRO-STREP will help improve feed efficiency, fight disease and enhance growth in turkeys, broilers, layers and swine.

CHICKENS *(Starter and Grower Rations)*

Penicillin is absorbed into the chick's bloodstream and carried to every tissue and organ in the body. Penicillin is effective against the gram-positive organisms. Many of the bacteria susceptible to penicillin are incriminated in secondary and subclinical infections in young chicks.

Penicillin also has a profound effect on stimulating growth, enhancing effective feed conversions and stimulating feed consumption.

Streptomycin is slowly absorbed from the intestinal tract. It provides "crop-to-vent" protection against harmful, gram-negative organisms. *Streptomycin will not interfere* with the action of beneficial intestinal *flora.*

LOW LEVEL—25 Gm./ton. Feed continuously to stimulate growth of chicks and to improve feed efficiency.

In presence of disease, recommend rations containing 100 Gm. of PRO-STREP.

HIGH LEVEL—100 Gm./ton. The following claims may be listed on your tags when PRO-STREP is fed at high levels to chickens:

a. Reduce mortality and hasten recovery from C.R.D. **b.** Treat nonspecific infectious enteritis. **c.** Maintain feed intake and weight gains during C.R.D. and nonspecific infectious enteritis. **d.** Aid in maintaining or improving hatchability (of fertile eggs). **e.** Aid in maintaining or improving egg production. **f.** Prevent early chick mortality due to organisms sensitive to penicillin and streptomycin. **g.** Improve feed efficiency as related to egg production or weight gains. *Suggested feeding schedules:*

1. Feed the first 10 days—then 3-5 days during, or immediately after, such stress factors as Newcastle disease or bronchitis vaccination, debeaking or housing pullets. **2.** Feed for the first 10 days and then for 3 days out of every week until birds are marketed. **3.** Feed continuously in case of disease outbreaks.

TURKEYS

Penicillin, absorbed into the bloodstream, affords maximum protection in all the tissues and organs of the body against the effects of gram-positive pathogens. Penicillin also is valuable in promoting economical weight gains in poults.

Streptomycin provides "crop-to-vent" protection against gram-negative organisms in the bird's intestinal tract. Slowly absorbed from the intestines, *Streptomycin does not interfere with the action of beneficial intestinal flora.*

LOW LEVEL—25 Gm./ton. For best results turkeys should be placed on low levels from hatching until they are 16-20 weeks of age. Low-level antibiotic rations will stimulate growth and improve feed efficiency. In the presence of disease, or on farms where the disease level is high, use rations containing 100 Gm. of PRO-STREP.

HIGH LEVEL—100 Gm./ton. At this level rations fortified with PRO-STREP will: treat bluecomb and infectious sinusitis; help maintain weight gains during outbreaks of these two diseases; prevent early mortality of poults due to organisms sensitive to either streptomycin or penicillin; help reduce losses following periods of stress such as vaccination, debeaking, chilling, moving, overheating; improve weight gains and feed efficiency in poults even in the presence of disease.

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Linear Programming—Part 3

Computing the Least-Cost Broiler Feed

"It is impossible for the unaided human mind to comprehend the wide range of possibilities that exist in a complex feed mix problem. . . . Linear programming can guarantee that you will explore the relevant possibilities regardless of your luck or skill. And, the mental effort required is actually much less than with the 'cut-and-try' method"

By Dr. Robert F. Hutton
Pennsylvania State University
Copyright 1958, Robert F. Hutton

EDITOR'S NOTE: This is the third in a series of articles on linear programming and its application in feed manufacturing. In this article, Dr. Hutton—an agricultural economist at Pennsylvania State University, University Park, Pa.—explains how the technique was used in computing a least-cost broiler feed. Even though the reader may not have read the previous articles in the series, he will be interested in this article. It provides a further guide on the value and use of linear programming in computing feed formulas. Future articles will deal with certain feed mix problems, too, plus the use of linear programming in other aspects of feed mill management.

Background—In previous articles we attempted to outline the principles of linear programming and to relate these principles to your mill operation problems—specifically the problems of formulating feed mixes. If you missed these articles (or wish you had), you may still be interested in this article because much of the problem of applying linear programming to feed mix problems does not concern linear programming itself, but rather concerns matters you struggle with every day; and, perhaps, avoid when you can. With linear programming it is much harder to avoid facing certain questions squarely, and therein lies an advantage.

Definition of Your Problem—The first step in this, as in most any problem solving technique, is that of defining the problem. The situation is different in applying linear programming only because the problem must be defined in such a way as to be quantifiable. For example, it would not do to say, "The mix must not be too bulky," since it is impossible to quantify such a specification. We will have to make such descriptive statements as "The mix must weigh between 30 and 40 lb. per bushel."

This defining the problem phase has two important sub-phases. One involves the decision as to what the mix specifications shall be; and in this connection, we will have an opportunity to reflect upon the disadvantages of a Procrustean view of mix specifications. The other phase is that of translating the specifications into suitable or workable form.

"Model Building"—The second part of the task of applying linear programming to your mixing problems is that of building an appropriate programming model. When we say "model," we use the word in the same sense as we do when we speak of a "model" airplane. In the feed mix problem we want the linear programming model to represent as closely as feasible the specifications of the feed mix. In the case of the model airplane, the object is to represent as closely as feasible the specifications of the airplane described by the model.

This model building has some rather narrowly technical aspects. You were exposed to the process in several of the illustrations used last week. There are other techniques that can be quite useful to you in simplifying your problems. We will discuss some of these in connection with the broiler feed model.

In a sense, the model building may be separated from the specification of the problem. Theoretically, at least, you could describe your mix specifications in an appropriate manner, hand them to a mathematician who would build the model; and, in turn, he could hand the model over to a computer operator who would solve the problem for present prices and return the solution to you. But, this is daydreaming. You will forget to list some specification that is so obvious to you that it does not deserve mention. It will not be at all obvious to the mathematician. Or, you will go to the other extreme and specify the mix to such a degree that only the mix you are using now will satisfy the specifications. The mathematician will feel unneeded and quit working on your problem.

At the other extreme, the mathematician could build a model that the computer could not solve, or could solve only with difficulty. Asking all these parties to maintain the necessary close working contact (when they have other pressing things to do) is asking more than gets done readily. Thus, there is a strong argument for someone to be able to visualize the whole procedure and act as the "catalyzing agent." There is very strong argument for this person to be one who is very familiar with the feed and mill characteristics. Although it may not seem so, this is the most complicated part of the problem. If you know the feed and the mill, and enough of the procedure to respond intelligently to the questions of a programmer who is frequently a mathematician versed in the characteristics of computers, you should get along very well.

One other ingredient necessary to your success is a certain amount of perseverance. If your first efforts produce any useful results, except to indicate your errors, consider yourself very lucky. There is a very important "feed back" of information that makes model building a more or less continuous process.

The final step, which we have alluded to already, is that of obtaining solutions. We have referred to "computers"; and, indeed, we would usually recommend the use of electronic computers as a time and money saving means of solving problems, but there is nothing involved that would not be done with an ordinary desk calculator, or by hand for that matter. In some cases, the use of desk calculators in modifying previous solutions obtained upon electronic computers may be feasible. We get into a discussion of this matter in a later article.

In this article we will tell you the story of how we developed a linear programming model of a broiler feed. To some extent it is an idealization rather than a faithful narrative. In this way you stand to profit indirectly by our initial mistakes without our suffering to reveal them.

Background to the Report on a Broiler Feed—Most of what we have to say here is based directly or indirectly upon results of a cooperative research project conducted jointly by the USDA and Pennsylvania State University. Results of this research are given in USDA Production Research Report No. 20. At the risk of being considered forward, I recommend that you obtain a copy for your leisurely review. (You may send a card to me at Hunt Building, Pennsylvania State University, University Park, Pa., and I will see that you get a copy. Or you may write to USDA as indicated elsewhere with this article.)

This research was begun by an agricultural economist, Gordon A. King of the USDA, who worked closely with Frederick V. Waugh, referred to in our first article, and with the poultry production staff at Beltsville, Md. Independently, Prof. Boucher and I began work on the same subject at Pennsylvania State University. When our mutual interest became known, we decided to enter into a cooperative project. As a result of a series of events, including a move to California by Dr. King, the burden of final analysis and report writing shifted to Penn State.

Scope of This Article—I would like to tell you enough about the broiler study to enable you to read the report with understanding; and, if possible, to interest you sufficiently to cause you to read it. I will not attempt to cover the full scope of the broiler feed report.

Nutritional Specifications—One of the essentials in our study was that of reaching agreement upon nutritional specifications of the broiler feed. To the agricultural economists this appeared initially as a very simple problem. At least one economist, whom I knew most intimately, supposed that these specifications would be found written down in a cut-and-dried manner in some reference manual. Fortunately, it did not take long to change this attitude, and we got down to work under Prof. Boucher's supervision and with his counsel to digging out information and piecing it together into a consistent set of specifications. We sought consistency rather than perfection. In an area as fluid as that of broiler nutrition, it is inevitable that any set of specifications would be soon out of date. A set of specifications was pieced together and is available in the report for all to criticize; and, I trust, to improve. As far as I know, this is the most complete set of such specifications ever assembled.

Regardless of how good, or poor, our set of specifications was, it provided a point of departure for our model building. So long as it is a reasonably adequate set of specifications, we are satisfied because we are able conveniently to modify the model at

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any time in the future for moderate changes in specification.

Ingredient Analysis—The nutritional specifications for the mix dealt with 19 characteristics and established minimum or maximum levels for 20 ingredients. At the outset of the analysis, at least, we thought we needed to know the analysis of all important ingredients in terms of the 19 characteristics used in the specifications. This seemed simple enough, but we ran through dozens of references before we got a listing with which we were passably satisfied. Many of the values used were inferences drawn by Prof. Boucher, based upon analysis of roughly comparable feedstuffs. But, again we have reported in one table a more complete set of composition values for feedstuffs than we were able to find anywhere in our search. Again we hope to be of service in providing something for others to criticize and improve.

With respect to the composition of feedstuffs as with mix specifications, the model may be conveniently modified to reflect changes in composition that will inevitably develop. The composition figures are average values anyway. The flexibility that is built into the model permits adjustment to composition of particular lots of feedstuffs should you desire this refinement.

The Least-Cost Solution—We developed a model of the broiler feed problem that appeared to us to reflect all of the significant specifications, and which included all of the significant ingredients. We programmed it for solution on "Pennstac," the university's electronic computer. We solved the problem for a particular set of prices after several delays and failures due to computer or program malfunction. The results were so ridiculous that we scrapped the model and started over. (Since we finally developed a model that works, my ego will stand to reveal this.) This points up my earlier comment to the effect that you need luck and perseverance. If you are paying commercial service rates for the computer, it helps to have a sympathetic treasurer during the "development" phase. Of course, we surely have made most of the mistakes that are possible, so you can profit by our experience and thereby reap some benefit from your investment in publicly supported research.

The second model was much better. So much better in fact that we patched it up here and there and included it in the project report. If we were to do it over, we would change it some, but at least it works. We will discuss the model in some detail later, but first we would like to make some pointed comments on the first solution we obtained.

Exploring With Linear Programming—The mix solution had some surprises. It contained no tallow or other animal fat. It contained nearly 10% of dried corn distillers grains with solubles. Soybean meal 44% was indicated rather than soybean meal 50%. Synthetic methionine entered in excess of 2 lb. per ton. All these things happened, but the mix characteristics were up to, or above, specification. We examined each of these ingredients with a view to explaining why they did, or did not, enter. In all cases the answer was complex. No single cause, or even as few as two causes, could be given for any of the instances. This makes an important point in our discussion. **It is impossible for the unaided human mind to comprehend the wide range of possibilities that exist in a problem of this type.** If you are formulating on the cut-and-try basis, you will be forced by the limit of the capacity of the human mind to confine attention to only a part of the possibilities. If you are lucky, or particularly skillful, you may explore by the cut-and-try procedure all of the relevant possibilities. Linear programming can guarantee that you will explore the relevant possibilities regardless of your luck or skill. And, the mental effort required is actually much less than with the cut-and-try method—just as it requires less mental effort to do arithmetic by aid of a desk calculator than by use of pencil and paper.

One other point can be made from the unusualness of our solution. A less imaginative nutritionist than Prof. Boucher probably would have excluded dried corn distillers grains with solubles from consideration. Including them in general, "just isn't done." Our solution which included them may be open to question. We could find no references in the literature to rations containing this level of this ingredient with all specifications met. But, the question of its use gets asked because we included it. To generalize, if you will let your model be as flexible as feasible, configurations will be suggested to you that you probably would never arrive at in any other way. Moreover, these will be configurations of great potential relevance since they point in the direction of lower ration cost. Of course, you will get some duds, but this is not serious since you can easily modify the solution to obtain an acceptable mix.

Modifying the Least-Cost Solution—Continuing now with our main story, the next step after obtaining a solution was that of demonstrating a method of modifying the solution. We displaced all of the distillers dried grains with solubles with other ingredients of equivalent nutritional value. We traced through the steps required to change specifications or to adjust for change in ingredient composition. We also discussed the method by which additional ingredients could be added to the list of those considered without re-solving the problem. All of these changes were made without the further use of the electronic computer. In developing the solution for a given set of prices, the computer gave us a set of "substitution coefficients" similar in type to those discussed in the previous article. All of these substitution coefficients are given in a table in the report. These may be of value to you even if you do not plan to use linear programming in your formulation work. To illustrate their character, we have reproduced in Table 1 two of the 31 sets of "substitution coefficients" given in the report.

One of these sets indicates the changes that are required to realize an increase in productive energy, one of the characteristics of the mix. The other set indicates the changes that need to be made to add tallow to the mix.

In order to increase productive energy 50 calories per pound we would need to reduce soybean meal, 44%, increase soybean meal, 50%, reduce corn gluten meal, increase meat and bone scrap, cornmeal, calcium carbonate, and reduce synthetic methionine. Are you able to visualize the complex adjustments needed in your formula simply to change the energy level?

The "substitution coefficients" given for "tallow" are interpreted in precisely the same manner. We put

USDA BULLETIN

The U.S. Department of Agriculture, in cooperation with the Pennsylvania Experiment Station, has issued a bulletin providing a mathematical pattern for developing a broiler feed mixture at lowest cost. If you have not already obtained a copy of this report, it is suggested that you do so. The bulletin—"A Least-Cost Broiler Feed Formula," P.R.R. No. 20—is available without cost from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C., or from the author of the accompanying article. The author of this article is one of the authors of the bulletin, and it is referred to in the article.

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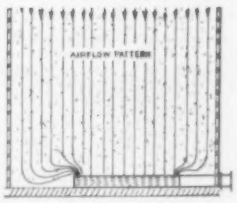
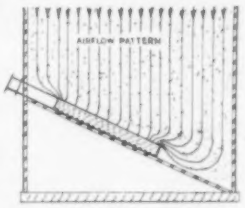
Get the facts on this new POWERATOR . . . contact your Rolfes representative or mail the attached coupon. We'll send you the complete story on this amazing new advance in aeration.





The POWERATOR gives you perfect aeration in either flat or hopper-bottomed bins. Available in 8" duct for your smaller storage, 12" duct for bins up to 10,000 bushels. Fans for each size are removable, portable, and completely weather-tight. Fan operates on either 110 or 220 volts.

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Rush me complete information, including new low prices, on the POWERATOR do-it-yourself aeration package.

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LOW COST?
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COLUMBIA SOFT PHOSPHATE?
It is the lowest cost phosphorus source acceptable for feeds . . . averages well over 9% Phosphorus . . . excellent service is offered throughout the year.
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COLUMBIA PHOSPHATE CO.
1007 WASHINGTON AVENUE
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TABLE 1—Substitution Coefficients for Productive Energy and Tallow With Displacement Value Net of Cost in Terms of Ingredients in a Least-Cost Broiler Feed*.

Item Displaced:	Substitution Coefficients for: Productive Energy (50 Cal./lb.)	Tallow (20 lb.)
Soybean meal:		
Solvent, 44% (T)	—0.721671	0.246913
Without hulls, 50% (T)	.667176	—.227113
Corn gluten meal (T)	—.044224	.016122
Meat and Bone Scrap (T)	.002821	—.000815
Cornmeal (T)	.095241	—.044832
Calcium Carbonate (T)	.000897	—.000356
Methionine (Synthetic) (T)	—.000240	.000080

*Adapted from Table 4, P. 13 of USDA "Production Research Report No. 20," 1958.

TABLE 2—Part of the "Initial Tableau" Used in the Broiler Study.*

$C_j \rightarrow$			—M	—M	—60.20	—67.20	—80.40	
↓		P_o	P_{11}	P_{12}	P_{13}	P_{14}	P_{15}	P_{12}
—M	P_1	1,787.42			2,000	2,000	2,000	
—M	P_3				45.8	50.9	42.9	—18.08
	P_5	3.24			5.8	2.8	4.0	
—M	P_6				1,520	1,580	1,642	—1,749.9
—M	P_8	1,749.9			1,520	1,580	1,642	
—M	P_{17}				3.20	3.58	1.4	—1.08
—M	P_{18}				2.90	3.58	.8	—.80
—M	P_{19}				.42	.75	1.0	—.41
—M	P_{20}				1.28	1.49	1.6	—.66
—M	P_{21}				.40	.45	.2	—.17
—M	P_{11}	1.04	+1		.32	.26	.16	
—M	P_{12}	.42		+1	.20	.19	.12	

*Taken from Table 9, p. 27 of USDA Production Research Report No. 20, 1958.

tallow in to accent a point. The addition of tallow, together with the other changes called for by the substitution coefficients in Table 1, does not alter the energy level one calorie. So when you say you add animal fat to increase the energy of your mixes, you obviously need to specify what other changes you made in order to get the fat in.

There are several characteristics that are changed when either energy or tallow is increased by use of the substitution coefficients of Table 1. We need not go into a discussion of them here since they are amply covered in the report from which these "substitution coefficients" are taken.

"Conventional Nomenclature"—In an appendix to the report, we give the technical specifications for our linear programming model. With the help of the previous article, you should be able to reason your way through this presentation. However, we used some "short-hand" in this report that we did not use in the previous article in this series. The "short-hand" employed by us is common to much of linear programming literature, so we will spend a little time discussing it.

In Table 2 we have reproduced a part of the "initial tableau" used in the broiler feed study. As you will see, the "initial tableau" is roughly the same as our tables of substitution coefficients in the previous article. The "P_o" column in Table 2 identifies the first "artificial" solution to the problem. However, instead of writing out the names of the "artificial" ingredients as we did in the previous article, we have assigned each one a symbol. The symbol consists of a letter and a subscript. We have used the letter "P", but the letter "X" is also commonly used and any other letter or symbol could be used instead of either. Our solution in Table 2 is:

1787.42 units of P_1
3.24 units of P_5
1749.90 units of P_8
1.04 units of P_{11}
.42 units of P_{12}

The symbols stand for the following "artificial ingredients":

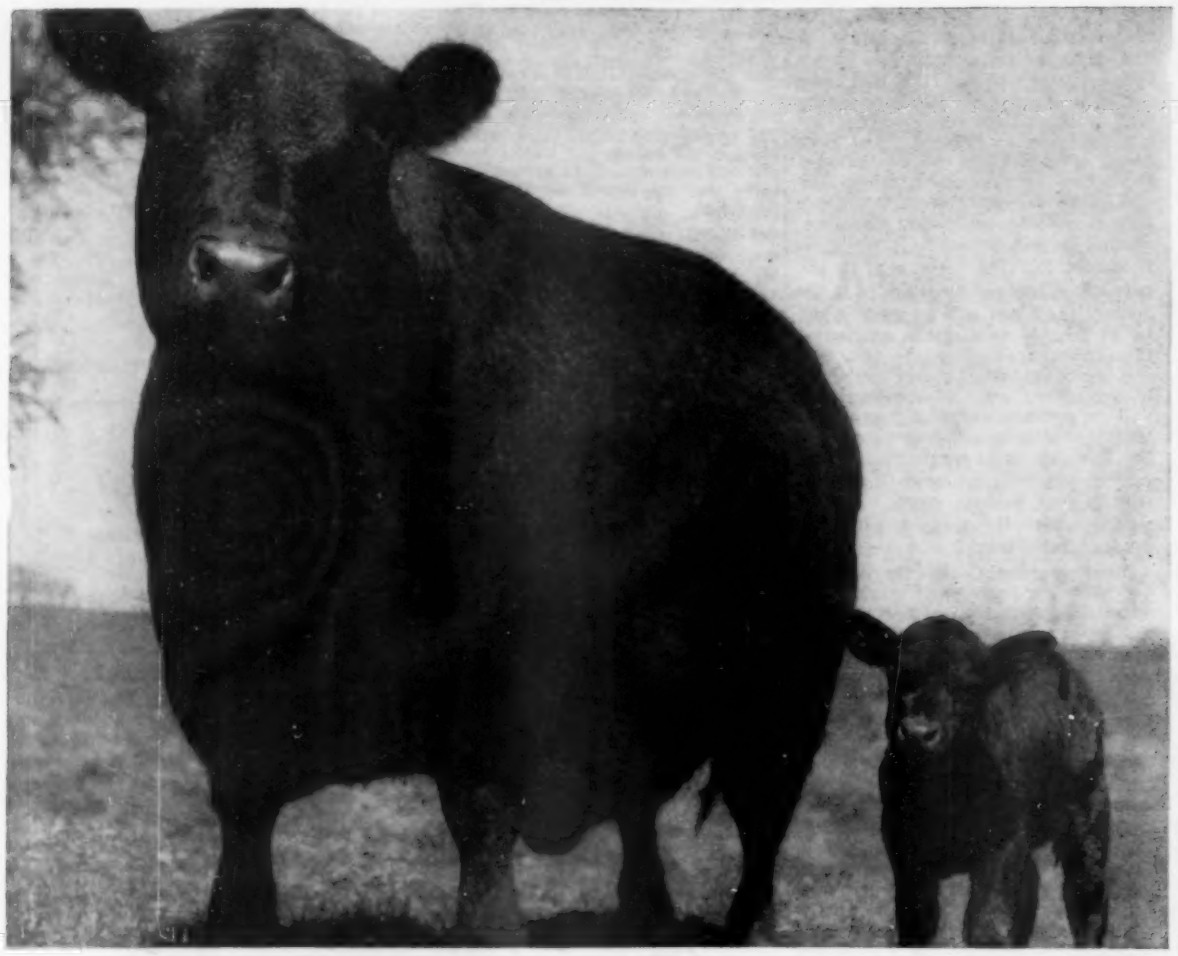
P_1="Artificial weight"
P_3="Artificial non-fiber"
P_6="Artificial productive energy"
P_{11}="Artificial calcium"
P_{12}="Artificial inorganic phosphorus"

All the other "P" symbols in the column represent artificial ingredients that are in the mix at zero level. I'm sure it seems a little silly to list these ingredients when they are not really in the mix, but there is a reason for this which is related to the mathematics of solution and which we can't discuss fully here.

Column "P_{12}" lists the "substitution coefficients" for soybean meal, solvent, 44%. The number 2,000 on the first row under the "P_{12}" indicates that the addition of a ton of soybean meal, solvent, 44% to the mix would displace 2,000 units of "P_1" which is "artificial weight." Continuing down the column, the 45.8 indicates that the addition of a ton of soybean meal, solvent, 44% to the mix would displace 45.8 units of P_3. Now P_3 is one of the "artificial ingredients" in our first trial mix that is in the solution at zero level. Obviously then we cannot add any of the soybean meal, solvent, 44% until we first get some positive amount of "P_3" into our solution. How can we do this? The only feasible way, as far as information given in the table indicates, is to add some of P_6. (In the broiler report there are three other items basically similar to P_6 that may be added.) Actually only part of the mix specifications were met by the solution given in "P_o". We must add "P_6" (or something similar) to the mix to meet all the specifications. When this is done, all of the "artificial ingredients" of the P_o column will be entered at positive levels.

The above discussion should permit you to relate the P_o column of the "initial tableau" of the broiler study to the "trial solutions" of our discussion in the previous article. The other columns give the "substitution coefficients" for real and artificial in-

(Turn to BROILER FEED, page 96)



She "packs a paunch" for profits!

Today, as a million years ago, ruminant animals have a major advantage as producers of meat and milk for human food. In their "first stomach" or rumen, cattle, sheep and goats have billions of micro-organisms at work, tearing down fiber and digesting feedstuffs to provide the animals themselves with more feed value out of a high-roughage ration.

Modern science is developing many new aids for making this ruminant digestion even more efficient, to produce more meat and milk at low cost. One is the use of PROCADIAN® Urea as a quick and economical source of protein. Another is the use of larger amounts of coarse roughage, which is digested faster and more completely by the rumen micro-organisms getting the PROCADIAN Urea source of protein in a balanced concentrate.

The high concentration of PROCADIAN Urea as a source of protein leaves room in the feed formula for all the energy, minerals, vitamins and other nutrients needed to make digestion and milk or meat production more efficient.

PROCADIAN Urea is a pure, free-flowing product that is ideal for feed formulation. It is supported by a powerful, educational advertising campaign that tells your customers to "look for urea on the tag" in buying feed. It pays to let your customers know that you are using PROCADIAN Urea in your feeds.

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Researchers See New Antibiotics In Swine Raising

BROOKINGS, S. D.—Experimental work in swine feeding at the South Dakota Agricultural Experiment Station indicates some promising new antibiotics may be on the horizon for swine producers, visitors at the annual Swine Field Day here were told.

According to R. C. Wahlstrom, head of swine nutrition work, other antibiotics may soon be competing with old types such as Aureomycin and Terramycin.

He said, pigs that received erythromycin gained faster, required less feed per 100 lb. of gain and resulted in bigger savings in feed during the finishing period than those getting the other antibiotics in dry-lot feeding experiments. Pigs fed erythromycin required from 10 to 20 lb. less feed per 100 lb. of gain than pigs fed other types.

In a second experiment to determine the effects of feeding various levels of thyroactive compounds to stimulate growth rate, Prof. Wahlstrom noted that pigs fed a complete mixed ration containing 400 mg. of triiodothyronine per ton gained faster than pigs fed other levels of the compound.

When the compound was fed at lower rates there was no effect on rate of gain. Higher levels resulted in smaller daily gains. Gains received in the 400 mg. level increased .19 lb. per day higher than control groups until pigs reached 110 lb. and .23 lb. more per day during the last half of the feeding period than the control group did.

Prof. Wahlstrom also remarked that a protein supplement containing 37% soybean oil meal, 30% tankage and 30% ground alfalfa hay was found to put weight on weanling pigs 13% faster than four other mixtures used in the same trial. Pigs were self-fed shelled corn on a free-choice basis.

Another experiment was designed to show whether or not increased gains received from feeding hygromycin are due to the control of roundworms or are the result of growth stimulating effect similar to that found in other antibiotics.

Prof. Wahlstrom found that hygromycin alone had no effect on gains but it did control roundworms. Using the antibiotic up to 100 lb. weights did decrease worm counts and worms were eliminated entirely when it was fed continuously until pigs reached 200 lb.

Other experimental work revealed that swine can drink saline water without receiving any more ill effects than cattle would under the same conditions. This means that standards of water quality established for cattle would also apply for swine.

Other researchers compared the cost of administering iron to baby pigs by an injection with the more commonly used oral method and also the effect of adding furazolidone to baby pig rations to eliminate scours. Eldon Juhl, graduate assistant in animal husbandry, said that average daily gains of baby pigs significantly increased when 10 grams of erythromycin was added per ton. Aureomycin and furazolidone at 100 grams per ton also gave significant increases in gains over control lots.

Other animal husbandmen gave the advantages of progeny testing and an explanation of purebred and on-the-farm commercial swine selection programs.

FEED FIRM EXPANDS

CANTRIL, IOWA — The Cantril Produce & Feed Co. has taken over the Cunningham Produce business also in Cantril.

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F. H. Peavey & Co.
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Founded 1852
MINNEAPOLIS Pv DULUTH

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from International Paper
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An improved anti-skid treatment for Multiwall Bags!

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- *40% better than standard kraft*

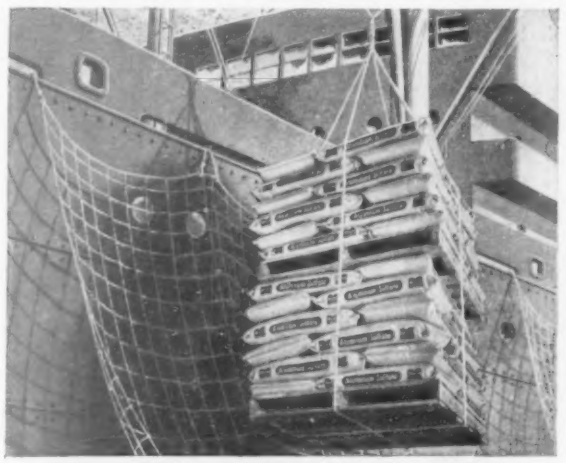
You can cut breakage loss—and danger from slipping, creeping stacks in the warehouse and on your trucks. Bags treated with "Tyon" stack to stay. They cling to pallets. Offer firm grip for fast, safe loading and unloading.

Remember, you get lots of advantages—with a lot of savings—when you specify multiwall bags treated with "Tyon"... another product of International Paper's long research and experience.

TYON
Look for this trademark on the bags you buy.

Send coupon for samples and full information

Up ramps and over bumps, bags treated with "Tyon" sit tight. *Allow faster handling.*


Stacked high or riding a sling, they cling. *Safer—resist slip and creep.*

Over bumpy roads, around curves, they ride—don't slide. *Eliminate breakage—speed delivery.*

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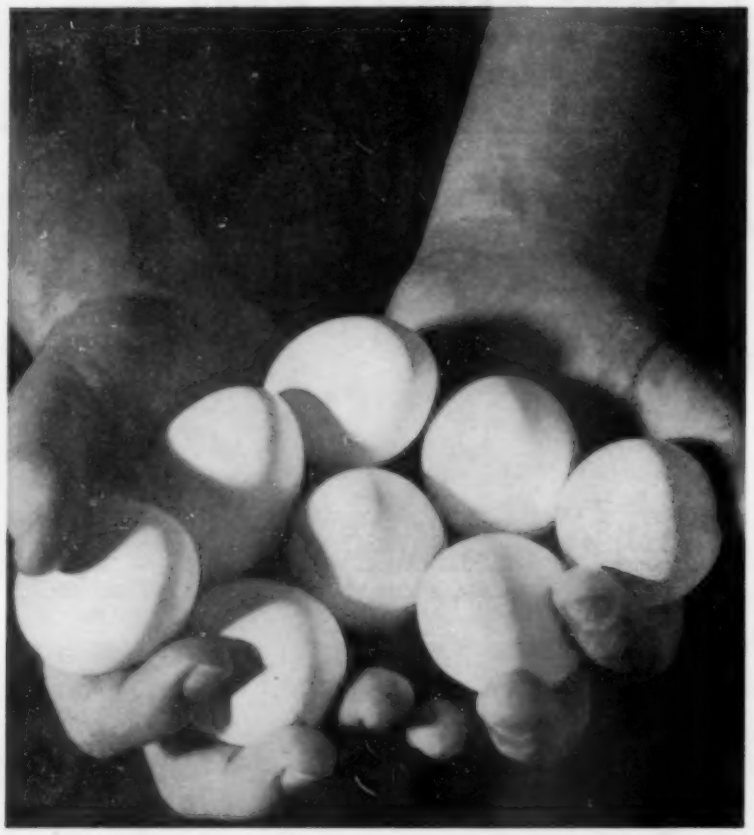
2 POULTRY PROFIT AIDS

STONEMO Granite Grit



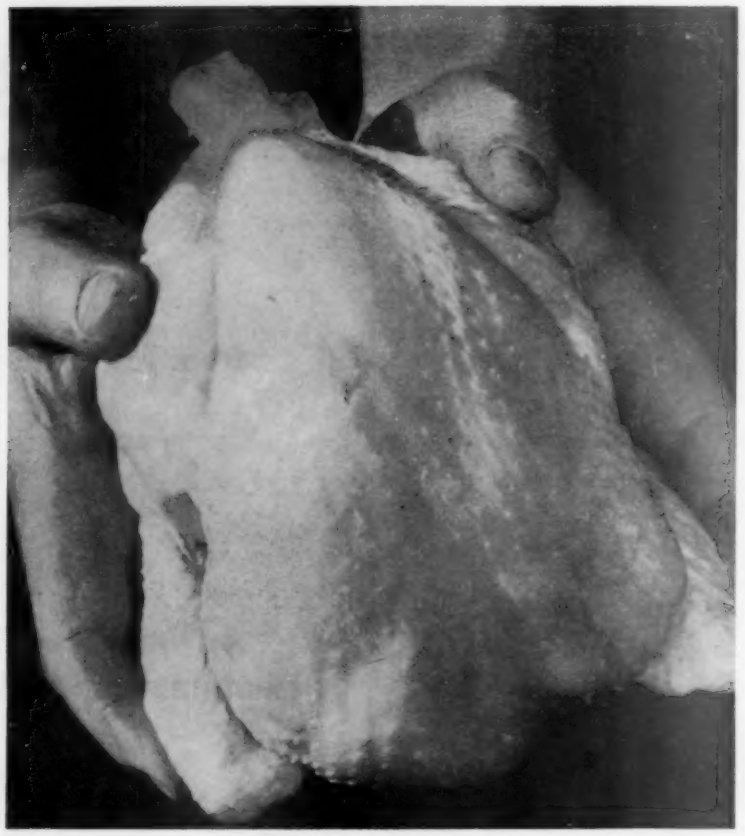
SELL GIZZARD GRINDING
and More Eggs from Your Feed

For extra eggs, your customers' birds need gizzard teeth that are hard, sharp-cutting, quick-grinding, and the proper size. Stonemo hard granite grit is scientifically processed to give your birds *extra grinding surfaces.*

With each contraction of the gizzard, Stonemo Granite Grit rips open the tough hard film which encases the various nutrients of the finest mash. Stonemo also grinds fine the coarse scratch grains, making them more digestible, better used to produce more eggs.

In the latest work of Iowa State College, up to 10% more eggs were produced from the same feed when Stonemo was offered free choice, and with better feed conversion.

So, sell the importance of gizzard grinding with every lot of feed. Sell the right size Stonemo and watch your customers' poultry profits grow.

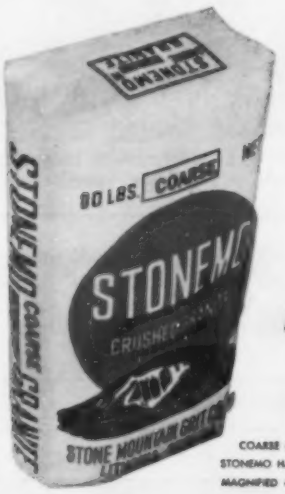


SELL GIZZARD GRINDING
and Extra Meat from Your Feed

If you have broiler customers who are having a hard time making a profit, here is a tip you and they will appreciate. In a series of feeding tests at our research farm, even when an all-mash diet was used, broilers were heavier, feed conversion was better, profits increased nearly ½ cent per pound against no grit—$16.85 per thousand birds.

Sell Gizzard Grinding, and your customers will find:

- **Birds will rid their gizzards of litter, fiber and feathers—make room for more meat-producing feed.**
- **Less feed will be used to produce a pound of meat, even on an all-mash feeding program.**
- **Birds get to market quicker—your customers start the next lot of broilers earlier—save time and money.**



COARSE SIZE STONEMO HARD GRIT MAGNIFIED 6 TIMES

Make STONEMO your Assistant Salesman

Whenever you sell feed for pullets or broilers, sell Stonemo with it, and make feed do a better job. Point out how changing to larger size Stonemo—Medium beginning the fourth week, Coarse beginning the seventh week—will increase feed efficiency and step up profits.

For further research facts about Stonemo, proper feeding directions, and sales aids including posters, newspaper mats, radio scripts, and the popular hit record "Sing Chicken Sing," write:

STONE MOUNTAIN GRIT COMPANY, INC.
Lithonia, Georgia

The Grit with the "EXTRA GRINDING SURFACES"

FROM ONE DEPENDABLE SOURCE

Sta-Kleen Nesting Material

SELL Sta-Kleen

Sta-Kleen Nesting Material is a natural to sell. Clean nests are so badly needed by poultrymen that Sta-Kleen almost sells itself.

Think of being able to tell your customers they can reduce the number of dirty eggs up to 80%.

Think of the sales appeal to a farmer's wife when you say that Sta-Kleen saves the chore of washing or cleaning eggs.

Think of selling the extra profit angle of marketing top-quality eggs—eggs with the bloom still on the shells.

But that's not all. You can also sell less egg breakage, less cracked shells, less unmarketable eggs, for Sta-Kleen is soft, resilient, and cushions the eggs.

Just as important as the right egg-laying environment is Sta-Kleen's remarkable ability to repel dirt and absorb moisture. Droppings are quickly dehydrated and easily removed from the nests.

What are Sta-Kleen's Advantages to You as a Dealer?

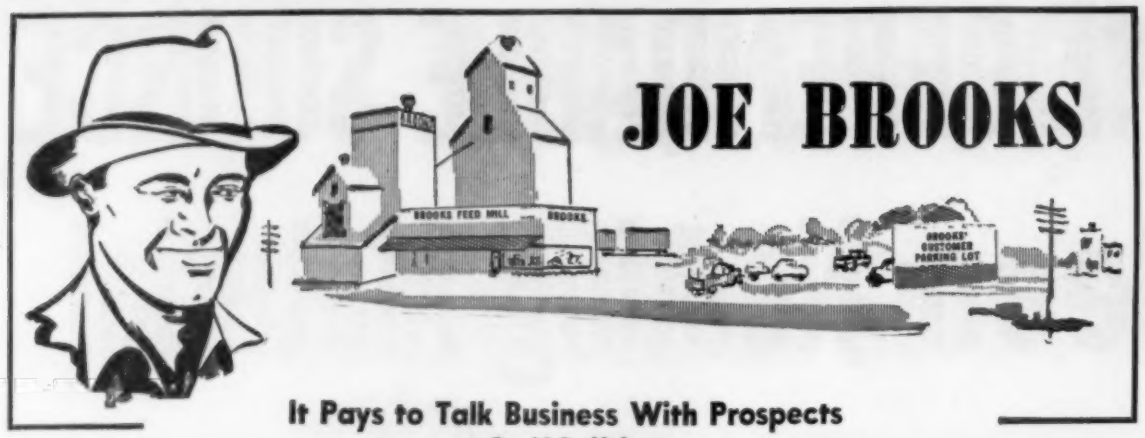
There are four big reasons for you to stock and sell Sta-Kleen. All four can increase your profits.

1. **Sta-Kleen sales give you a good margin of profit.**
2. **Sta-Kleen is a repeat item that constantly builds your business.**
3. **Sta-Kleen is nationally advertised to help you build volume fast.**
4. **Sta-Kleen is display packaged in 50 lb. multiwall bags. It's easy to buy right along with your Stonemo Granite Grit.**

So, order Sta-Kleen today from your supplier of Stonemo Granite Grit. Write direct for folders, posters, newspaper mats.

STONE MOUNTAIN GRIT COMPANY, INC.
Lithonia, Georgia

Sta-Kleen ...another fine product to increase poultry profits



It Pays to Talk Business With Prospects

By Al P. Nelson

Joe Brooks was called to the telephone at the Hotel Manitou, as he and his employees were having a steak dinner at Joe's expense. This was a ritual which always preceded the meeting. The only employee who did not attend was Grandpa Hodgkins, the dollar a year man who came to the feed mill one day a month for a workout. Grandpa always said that he had quit eating steak dinners at age 70, which was ten years ago, and now ate only hamburgers on account of his store teeth. Furthermore, he didn't like to stay up late.

"Well, fellows," said Milt Peters, wiping his lips with a napkin following his second cup of coffee and his last morsel of apple pie a la mode, "I think we have covered just about everything from advertising and promotion to dusting off the pellet mill every morning in these monthly meetings. There just can't be anything more to discuss."

Pop Henley chuckled. "When I was selling mayonnaise on the road, some 30 or 40 years ago—and earning a danged good income, too, by the way, whenever a salesman said what you have just said, we all knew he was getting old and slipping."

"Well, I'm far from old, as some of my lady friends will be quick to admit," Milt said glibly, "but actually, Pop, there is no use going over the same things time and again like Joe does at these meetings."

Again Pop Henley chuckled. "Why do national advertisers repeat their radio and television jingles and slogans over and over again. Because repetition sticks in the mind, and bingo up pops an impulse to buy, and the identifying slogan comes to mind."

"There is also such a thing as something catching fire on the third or fourth try," said Ed Eggers, manager of the Endeavor mill branch. "You can give a farmer a sales talk on feed, pellets, crumbles or meal, two or three times running and never get to first base. But then sometimes on fourth or fifth try, the talk catches fire and you make a sale."

At this moment Joe came back from the phone. Standing up, he drank the last swig of coffee. "Well, is the brain trust ready?" he grinned. "Let's go back to the feed mill and try to revolutionize the feed industry."

"We ate so much you'll have to do something to keep us from falling asleep," Butterball said. "Joe, this place serves the best steaks I ever ate."

"I've got a fly swatter I can use if any of you drop off to sleep," Joe promised with a smile. "Come on, let's go."

Over at the mill, the room was quite cool and this fact woke up the employees a little. Joe slung his leg over the corner of a big oak table and looked at his men who were seated in folding chairs.

"Do you fellows think we are doing a good selling job?" he asked.

"Sure," said Milt. "We have a big stack of invoices every day. The cash register rings all day long, Windy brings in lots of orders from the routes, and Molasses and Frenchy are getting thin from working so hard. Yep, we're doing a good selling job."

"As good as city salesmen?" Joe asked.

Ball Games on Sly

"Sure," said Smiley Johnson. "They spend too much time driving around at company expense and entertaining

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For the second straight year of hog feeding comparisons...

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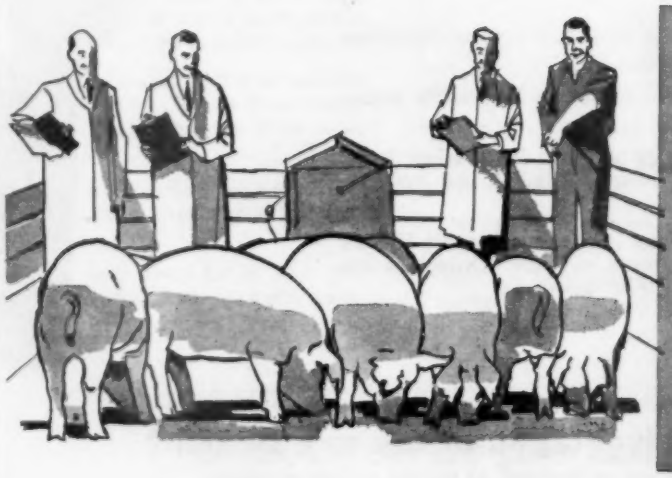
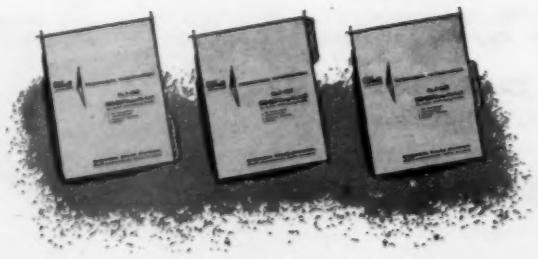


Feed/	Feed per pound of Gain	Feed Cost per 100 lbs. Gain
Basal Ration	3.36 lbs.	$9.19
Basal Ration plus 3-nitro-4-Hydroxy-phenylarsonic acid	3.32 lbs.	$9.10
Basal Ration plus 4 antibiotics*	3.27 lbs.	$9.19
Basal Ration plus Arsanilic Acid	**3.15 lbs.**	**$8.66**

/Jordon, C. E., Beeson, W. M., and J. H. Conrad, Purdue University Agr'l Exp. Station Progress Report, August 22, 1958.

*5 Gms. Chlortetracycline, 7.5 Gms. zinc bacitracin, 2.5 Gms. penicillin and 5 Gms. oxytetracycline.



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- **F-400**—How to Fortify & Label Swine and Poultry Feeds with PRO-GEN (Arsanilic Acid).
- **F-401**—PRO-GEN® (Arsanilic Acid) for Swine Feeds.
- **F-402**—PRO-GEN® (Arsanilic Acid) for Pullet and Laying Feeds.

For your personal copies write to ABBOTT Laboratories, Chemical Sales Division, North Chicago, Illinois

customers and taking in ball games on the sly."

Joe took a piece of paper from his pocket and unfolded it. "There is only one point to the sales lesson we are going to discuss tonight, fellows. That point is—we must ASK more people to buy from us if we want more sales."

"You can't push farmers too far," Milt Peters said solemnly. "I've heard lots of dealers say farmers don't want salesmen calling on them and taking up valuable farm time, especially during harvest and busy times."

"I don't believe it," Joe said. "Any kind of salesman can make a pest of himself, but I believe the farmer always welcomes talking to a salesman who can explain some new product that farmers can use to cut costs and make more profit. And I also believe you won't sell a man by leaving him alone. You've got to ASK people to buy."

The men looked undecided.

"This report I have," Joe said, "concerns a test which was conducted by the Cleveland Advertising Club. The club mailed a questionnaire to its members which asked, 'has anybody asked you to buy (by phone or in person) since Jan. 1?'

"Then followed a list of 12 big ticket items. Two hundred and twenty-six responded to the questionnaire, and here are the results:

Questionnaire Responses

"1. An automobile? 16%.
"2. Home appliances? 4%.
"3. Office appliances? 16%.
"4. A house? 7%.
"5. Fur coat for your wife? Less than 1%.
"6. A new suit of clothes? 13%.
"7. New furniture? 6%.
"8. Membership in a club? 23%.
"9. Insurance (any kind)? 43%.
"10. A color TV? Less than 1%.
"11. A hi-fi set? 3%.
"12. A vacation tour? 4%."

"Gee whiz," said Pop Henley. "There are some low percentages. Think of the extra sales that perhaps could have been made in those fields if more of the men had been ASKED to buy."

"That's the point," Joe said. "Some people buy from you without being asked. Some come because of their relatives' or friends' recommendations. But some people have to be ASKED TO BUY."

"Well, how will that change our way of selling?" asked Ed Eggers.

Extra Commissions

Joe smiled. "I am going to draw up a schedule of things which we are going to push for certain periods, ranging from two weeks to a month—everybody at both places of business. We are all to ASK people to buy these things. There will be extra commissions to employees who sell those items during the specified period based on dollar volume."

"You mean we are going through our entire line of goods?" asked Butterball. "Things like pellet, crumble and meal feeds, salt block, poultry and livestock remedies, barn and poultry equipment and the rest?"

Joe nodded. "We'll figure out a definite extra sales period for all. Then we'll compare our sales with a previous two weeks or month of the last year. If people want us to ASK them to buy we will. And we'll keep an account of the comparative results to see if we continue such a program or not."

Smiley turned to Milt. "And you said we had covered all phases of merchandising, that there was nothing new to try. If this program brings results, fellow, maybe Joe'll have to give us two dinners a month instead of one."

B. W. Roberts

VICE PRESIDENT—B. W. Roberts, San Francisco, has been elected a vice president of General Mills, Inc. He succeeds E. O. Boyer as general manager of Sperry Operations of GMI in the western states. Mr. Boyer has been appointed vice president and administrator of the flour, feed and oilseeds operations of GMI.

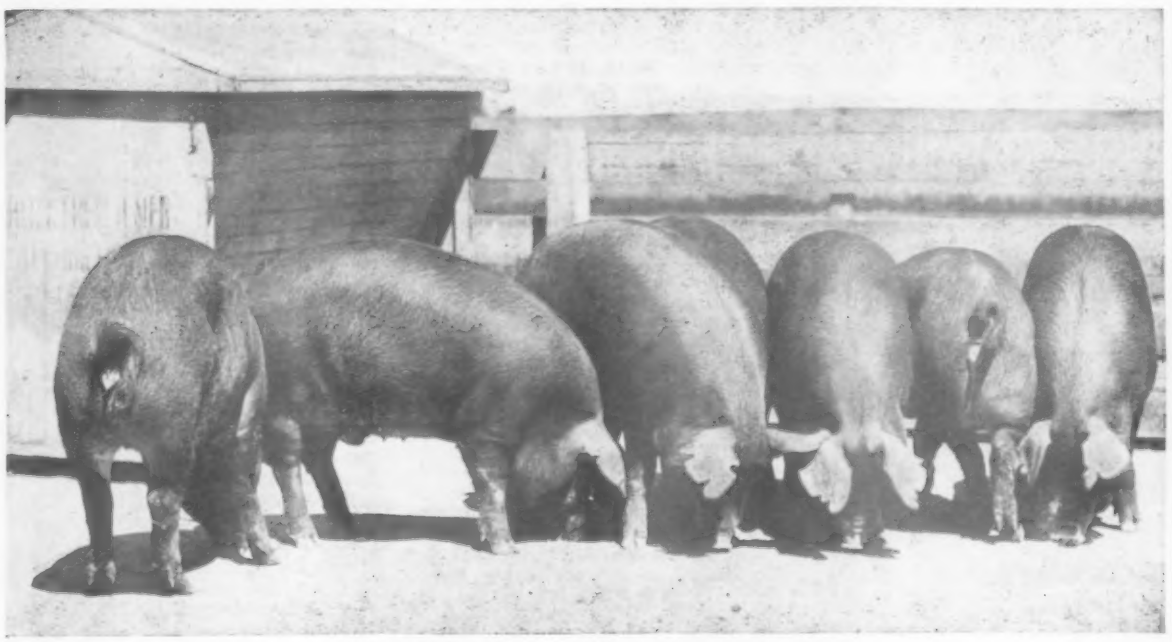
N.C. Calf Sales Begin

RALEIGH, N.C. — North Carolina farmers are expected to gross over a million dollars from the fall series of feeder calf and yearling steer sales now under way.

Last year 9,455 calves and steers brought $943,354.41, and with more than 10,000 high-quality animals expected, A. V. Allen, animal specialist at North Carolina State College, declared the income could easily top the million-dollar mark this year.

The calves offered for sale are graded by an official state grader, and are sold in uniform lots according to breed, sex, weight and age.

During the first three years of the sales, Mr. Allen said only 52% of the animals fell in the top three grades, while last year over 70% were in these grades.



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WHAT'S NEW IN FEEDING?

Putting Research to Work

By Spencer H. Morrison, Ph.D., D.V.M.

Grit for Laying Hens

● E. J. Day, L. J. Dreesen and J. E. Hill, Mississippi Agricultural Experiment Station; Poultry Science, Vol. 37, No. 4, July, 1958.

ABSTRACT

Two experiments were conducted with laying hens to determine the effect of grit using both all-mash and mash-grain systems of feeding.

Experiment 1—Both Single Comb White Leghorn and broiler strain New Hampshire chicks were fed a commercial starter ration without any supplementary grit until eight weeks of age. Although grit was not available during the growing period, the birds had access to rocks and other hard material until five months of age since they were not raised in confinement.

At five months of age, 180 New Hampshire pullets and 240 White Leghorn pullets were divided at random into species groups of six pens each, respectively. The dietary treatments were either a 15% protein all-mash medium energy ration (810 productive Calories per pound); or a medium energy mash (20% protein) fed 50-50 with a mixture of equal parts whole corn and oats so as to result in a final ration of 810 Calories per pound. The dietary treatments were subdivided into pens receiving insoluble granite grit and no grit. There were thus two pens in each breed group receiving mash-grain with grit and two pens fed mash-grain with no grit. There was also one pen in each breed group receiving all-mash with grit, and one pen receiving all-mash without grit.

All birds were housed in the same building, and all groups receiving grit had access to hen size insoluble granite grit at all times throughout the 10-month laying test.

The results of the first experiment revealed no statistical differences in egg production due to the various systems of feeding, or the feeding of grit. Indeed, the data indicated a trend towards lowered egg production with the feeding of supplementary grit, especially with birds fed mash and whole grains.

Experiment 2—In this laying experiment of nine months' duration, White Leghorns (total 504) were divided at random into 12 pens. One half of the pens received high energy rations while the others received medium-energy rations (same type as Experiment 1). The high energy rations contained 922 productive energy Calories per pound of feed. Each dietary group was fed either all-mash or mash-grain rations in a similar manner to Experiment 1.

All birds in the experiment had previously received grit (chick size, 0-3 weeks; medium size grit, 3-6 weeks; and coarse grit, thereafter) and had access to hard materials while kept on range from 8 to 20 weeks of age. The birds on the mash-whole grain system were not limited to 50% grain intake, but were allowed grain free-choice. Certain groups were offered a mixture of whole corn and oats, while others were offered only corn.

Contrary to the results secured in Experiment 1, the results of this trial showed that there was a significantly higher rate of egg production as a result of feeding grit. In every instance the performance of the grit-fed birds was better, although in some cases the differences were very slight. The over-all average egg production and pounds of feed per dozen eggs were 65.1 and 4.9 lb., and 60.1 and 5.1 lb., respectively, for the grit and the no-grit fed birds.

Increasing the energy content of the ration did not significantly affect egg production although feed efficiency was increased. Body weight gain was greater for birds fed higher energy rations. It was noted that although there was no difference in egg production due to system of feeding, the group of birds receiving only whole corn as the grain portion of the ration laid at a slower rate during the first few months of the test. During the latter months of the experiment, this trend was reversed.

COMMENT

Grit for chickens of all ages seems to be a fascinating subject and good for an argument at any meeting of poultry folks. There have been good reports by research workers over the past years concerning the pros and cons of grit. Generally, the consensus seems to favor the use of grit with whole grain diets, but it may be questionable with all-mash diets.

A recent report by the Iowa workers (1956) showed better results with both young chickens and layers with the use of grit when all-mash rations were fed in batteries or cages. More recently, Scott and Heuser (1957) summarized the value of grit for both chickens and turkeys.

The authors of this Mississippi paper have no explanation for the fact that no response was obtained with grit in the first trial, even on the mash-whole grain types of diets, whereas one was achieved in the second trial. They postulate that the difference was possibly due to the fact that the grit-fed birds in Trial 2 received grit from day-old to sexual maturity while those in Trial 1 only received it during their actual laying period.

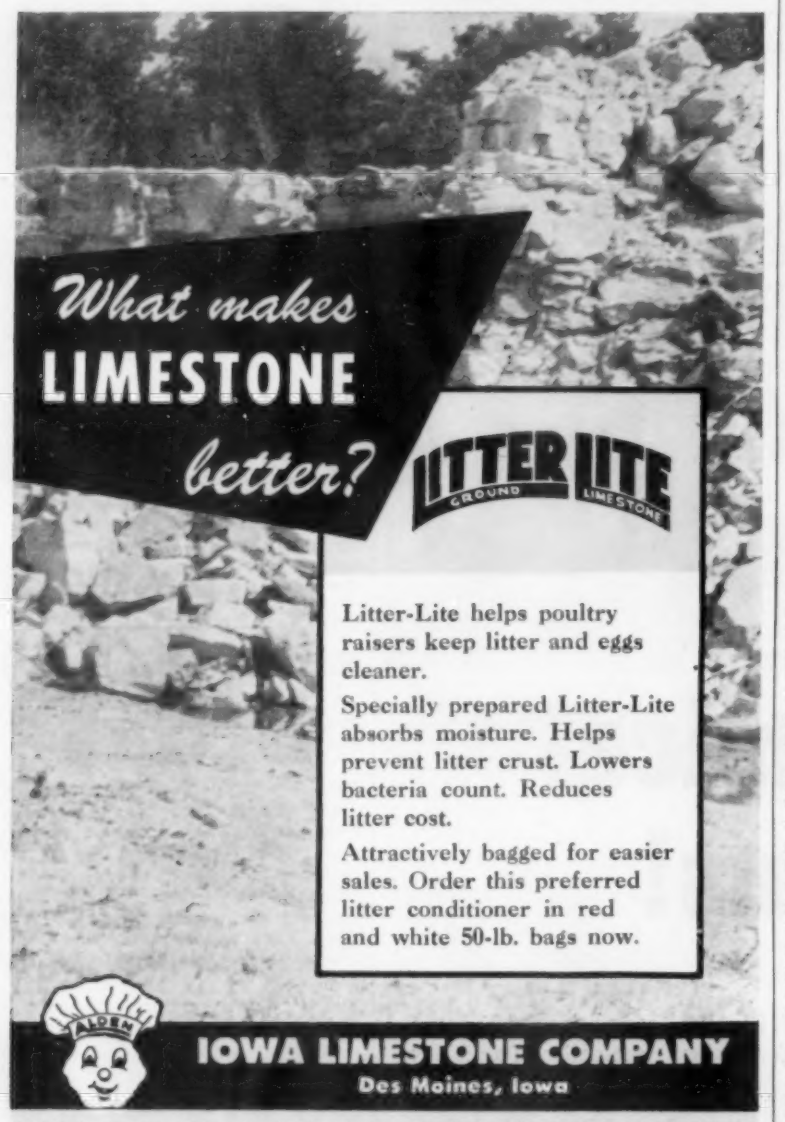
It is my opinion that this is probably not the reason for the difference. Differences due to the feeding of grit often are observed, but many times these differences are extremely small. This is well brought out by the second Mississippi trial, especially in certain groups. It still seems wise to use grit for layers, even with all-mash rations, in spite of the somewhat varying results so far reported.

●

Timely and Worth Noting

THE AMINO ACID REQUIREMENT OF THE GROWING CHICK FED CRYSTALLINE AMINO ACIDS—G. J. Klain, H. M. Scott and B. C. Johnson, University of Illinois; Poultry Science, Vol. 37, No. 4, pp. 976-77 (research note).

Using a free amino acid diet which supports satisfactory growth, the requirements of the growing chick for amino acids have been determined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FAIR DISPLAY—The Memphis Board of Trade's exhibit at the recent Mid-South Fair, Memphis, drew a great deal of attention. The Board of Trade had a replica of its grain inspection department on exhibit, and an attendant gave onlookers sheets of information about this operation, as well as the board's general work and background. John Richter is showing the exhibit to two Manila, Ark., schoolgirls, Shirley Atkinson (left) and Jean Southern.

by the Illinois group. All experiments were conducted with seven-day-old male chicks of the New Hampshire X Columbian cross, and were of five to seven days' length.

It is interesting to note the results secured by this method with the minimum requirements for the chick of amino acids as listed by the sub-committee on poultry nutrition of the National Research Council (1954):

Amino acid	Requirement % diet—Illinois	NRC % diet
Glycine	0.50	1.00
L-lysine	1.23	0.90
L-tryptophan	0.175	0.20
L-threonine	0.58	0.60
L-leucine	1.66	1.40
L-histidine	0.41	0.15
DL-methionine	0.60*	0.80
DL-methionine	0.20†	0.45‡
L-cystine	...	0.35‡
L-phenylalanine	0.59§	0.90
L-tyrosine	0.80¶	0.70
L-isoleucine	0.84	0.60
L-valine	0.96	0.80
L-arginine	1.16	1.20
L-glutamic acid	15.00	...

*In the absence of L-cystine.
†In the presence of 0.40% L-cystine.
‡In the presence of 0.70% L-tyrosine.
§In the presence of 0.44% L-phenylalanine.

NYSTATIN (MYCOSTATIN) IN RATIONS FOR GROWING TURKEYS—G. F. Combs, G. L. Romoser and C. S. Shaffner, University of Maryland; Poultry Science, Vol. 37, No. 4, pp. 896-898.

Two experiments were conducted with Maryland Medium White turkeys to determine the effect of Nystatin supplementation to practical-type starting and growing rations. No effort was made to induce fungal infection, and practical type rations containing 4.4 mg. of procaine penicillin per kilogram were used. The birds were on a 28% protein starter from 0 to 6 weeks inclusive, a 23% grower from 6 to 12 weeks, and an 18% grower from 12 to 20 weeks. Two groups of 100 poults each, in each experiment, were wing banded and fed the unsupplemented diet. Two comparable groups were given the same ration except modified to contain 33 mg. Nystatin per kilogram during the entire 20-week period.

Supplementation with Nystatin had no apparent effect on rate of growth, feed conversion or mortality.

It has been reported that Nystatin is able to control crop mycosis in chicks and turkeys and monilia infection in swine. (Yacowitz, 1957; Catron, 1957). It is also apparently safe to use. This information may be useful to tuck away in the back of your mind for use by your poultry serviceman when mycosis strikes.

G.L.F. Gives Coupons As Feed Promotion

ITHACA, N.Y.—"Family Bonus" coupons redeemable for farm and home hardware and other items are being offered by the Cooperative G.L.F. Exchange, Inc., Ithaca, as part of a fall feed promotion. The program was announced in a recent issue of G.L.F. Week, publication of the cooperative.

Coupons worth 50¢ will be given for every 500 lb. of G.L.F. feed purchased in amounts of 500 lb. or more. They may be redeemed at any G.L.F. service agency for any G.L.F. farm and home hardware item, or for national brand items.

Patrons will receive coupons with bagged or bulk feed, whether delivered from a local service agency or direct from a mill, and with concentrates. Coupons will be issued until Nov. 15. Goal of the drive is a 15% increase in tonnage in a two-month period.

Test Shows Efficiency Of Meat-Type Swine

GRUNDY CENTER, IOWA—Meat-type hogs gain as rapidly as the lard-type and take 32 lb. less feed to get to market, according to statistics on 456 hogs tested at the Ohio Swine Evaluation Station during five seasons.

The comparison of meat hogs and fat hogs is contained in a report by W. H. Bruner, extension hog specialist at Ohio State University. The report is one of a series issued by the meat-type hog education committee of the National Swine Growers Council.

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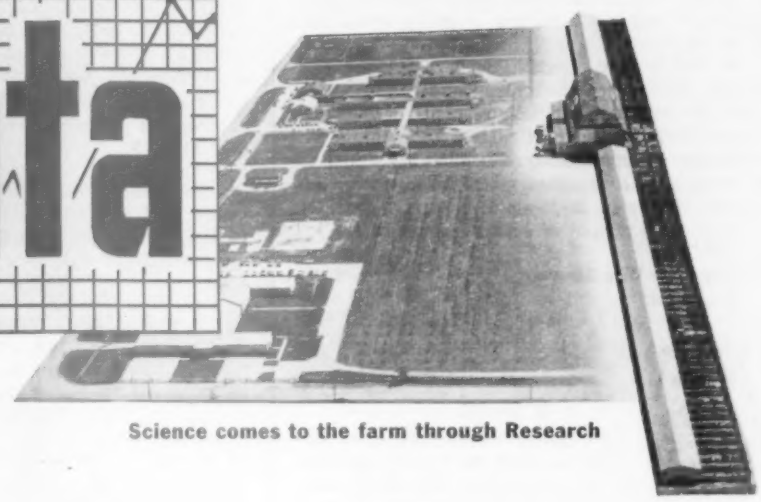

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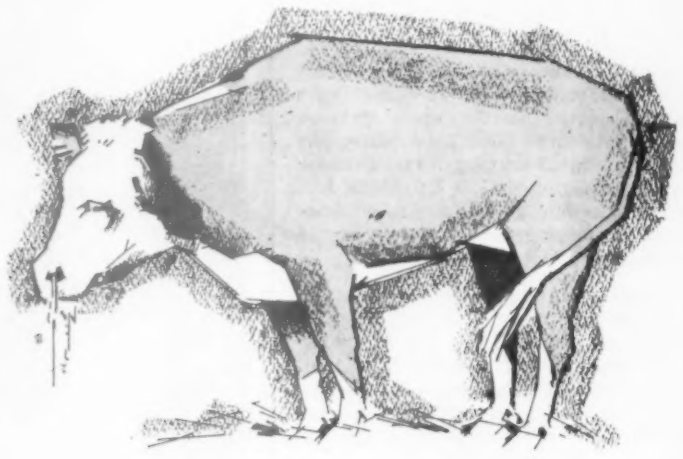
SHIPPING FEVER COMPLEX



Bovine shipping fever, an infectious respiratory disease, is somewhat clinically comparable to influenza in man. Shipping fever in cattle has a somewhat longer estimated incubation period than that for influenza in man; in cattle shipping fever is primarily a disease of the lungs.

Primary cause of shipping fever — causative agent or agents—has not been determined. Because of this shipping fever has never been given a fully satisfactory name (1). In the confusion shipping fever has been variously called: transit fever, stockyard fever, pneumonia, pasteurellosis, stockyard pneumonia, and hemorrhagic septicemia (1, 2, 3, 4, 5, 6).

Hemorrhagic septicemia, however, as a name for shipping fever seems to have little justification because it does not indicate the cause or the primary characteristics of the disease (1, 7). Hemorrhages are relatively common, but septicemia—infection in the blood stream—is present only in the later stages, if at all. Also, the term, hemorrhagic septicemia, has been used and discarded for a whole variety of diseases. When the true cause of this disease is found, a more appropriate name can be applied to the shipping fever complex (1).

Shipping fever has been a common disease throughout the United States and Canada since the turn of the century (2). The disease is usually associated with the shipping of animals and the resultant stresses they suffer in translocation (1, 2, 3, 4, 5, 6). The disease occurs in cattle of all ages in all parts of the country (6).

It often spreads to exposed native stock, and it seems to occur occasionally in unexposed, unmoved cattle (1). Although outbreaks sometime occur in dairy cattle, or range cattle, in good condition, the losses appear to be greatest among young animals, especially those whose resistance has been greatly reduced (6).

It is particularly prevalent in feeder cattle of any age or type just after they have been moved from the range or from their home environment to feedlot (1, 7).

Shipping fever may occur in any season, but most cases occur in the fall, when most of the cattle movement takes place. Crowded feeder cattle traffic lanes apparently become quite contaminated, thus increasing exposure of animals to all infections. Stockyards, sales barns and other yards, railroad cars, trucks and other vehicles, and private feeder yards become contaminated. It is possible that healthy looking, or recovered animals may carry and spread the infection (1).

Several large herds of 400 to 500 calves have incurred death losses of from 25 to 50 head (5). In some years considerable losses may occur, whereas in other years they are slight (6). It is the shipping fever seen in stockers and feeders which is of the greatest economic importance (7). The United States Department of Agriculture estimates that the economic loss of livestock in the U.S. from this disease amounts to about $25,000,000 (8). It is certainly one of the most important causes of losses in beef cattle (7). Losses from shipping fever should include not only deaths but also shrinkage and growth setback that calves undergo (5). In some years it probably has caused the death of more young cattle than any disease (1). The disease is, therefore, a serious problem to both shippers and receivers of cattle (6).

Stress is predisposing . . .

It would appear that shipping fever will continue to be responsible for enormous losses to livestock industry unless measures are taken to reduce the stress incidental to transportation (7).

Shipping fever appears regularly when animals are subjected to circumstances which produce stress (3). As soon as cattle move from their native range they move into radically changed environment. Disruption of their feeding and watering habits alone is extreme (7). Such changes involve many factors as inclement weather, branding, dehorning, vaccinating, driving, shipping, chilling, a lack of or changes in feed and water, inhaled dust, trauma, fatigue, fright, anxiety, direct or indirect contact with exposed animals, trucks, railcars, yards, and overcrowding (1, 3, 5, 6, 7, 9). Certainly a striking feature of shipping fever is the severe stress to which cattle are subjected after leaving the range. Although it has been common knowledge for many years that physical stresses predispose the animals to infections, it is only recently that the mechanisms involved have been worked out. An interesting report shows that latent infections of **Pasteurella multocida**, an organism frequently associated with shipping fever, in rats are made more acute and fatal as a result of inoculating high doses of cortisone, a substance released in relatively large amounts during stress. The stress to which cattle are subjected does not cease until they have been adjusted to new environments on farms (7).

Calves weaned just before being shipped seem to be the most susceptible, probably because they are more excitable and because they experience more marked feed changes than older cattle (1). This raises the question of whether or not the practice of creep-feeding

suckling calves would enhance the calves' resistance to shipping fever (18). Resistance increases, however, with the increase of age of the animals (1).

Good physical condition seems to afford little protection against incurring shipping fever, but it undoubtedly is a factor in avoiding complications and serious losses. Poorly nourished and highly parasitized animals usually are more seriously affected and less responsive to treatment. Deficiencies, particularly of vitamin A, could also be expected to reduce the resistance of animals against respiratory infection (1). Etiological factors in shipping fever are apparently a complex composed of several elements (9).

The cause? Who knows?

In spite of the serious losses from shipping fever, relatively little progress has been made in determining its cause (1, 3, 6, 7, 9, 10, 11).

Many authorities once believed that the bipolar bacillus, or pasteurella organisms, was the primary cause of the disease. Certain strains of pasteurella are recovered from animals dead of shipping fever (1, 9). On further investigation, however, these bacteria did not appear to differ from those found in normal cattle (9).

Experimental transmission of the disease has not been accomplished with pasteurellas or with other bacteria isolated from the respiratory tract. Vaccines and antiserums made from pasteurella sp. have not prevented shipping fever, although they have been widely used (1, 6, 7, 9, 10, 11, 12): Since sulfonamides and antibiotics are effective in treatment of shipping fever, it would appear that bacteria are of importance (9).

There seems to be no good reason to believe that one particular stressor or infectious agent alone is responsible (1, 3, 6, 7, 9, 11). A number of quite different physical stressors have been shown to be nonspecific since they cause similar physiological reactions called the general adaptation syndrome (9).

Streptococci, staphylococci, corny bacteria, **Escherichia coli** and PPLO are often demonstrated in association with **P. multocida** and **P. hemolytica** in shipping fever of cattle and sheep (7, 8). During an outbreak of shipping fever in Canada, it was observed that out of 26 typical cases, **P. hemolytica** was isolated from 15, **P. multocida** from 10, **Clostridium pyogenes** from 2 and PPLO from 4; obviously some cases gave multiple isolations. Later it was shown that **P. hemolytica** was recovered from nasal swabs in 27 out of 33 cases of cattle suffering with shipping fever and PPLO from 16 of these (8).

The hypothesis of a virus, perhaps latent, being activated by stress to make a favorable environment for secondary infection finds some experimental support (1, 6, 7, 9, 11, 13). The occurrence of elevated temperatures in calves suggests the contagion of an infectious agent. The changes in the leukocyte counts are similar to those seen in some vital infections. If such an infectious agent exists, it could be common in cattle populations, perhaps producing clinical disease only under special condition (9).

Although viruses and rickettsia have not yet been conclusively demonstrated, it would seem that in some instances these agents are forerunners of pasteurella infections. The conclusion is then that the shipping fever seen in cattle is a pulmonary infection of varying etiology initiated for the most part by stress incidental to transit (7).

The capacity for shipping fever to spread from farm to farm in the manner of well-known epizootic disease is not great (3).

Symptoms are many . . .

The disease is primarily a respiratory disease and varies from an inapparent disease to a rapidly-developing fatal pneumonia (6, 9). Indications of shipping fever usually appear in from two to 10 days, or longer (1, 6, 9) and exhibit one or more of the following symptoms:

Depression (stand alone with head down and ears drooping), gaunt appearance due to anorexia, may develop a temperature above 104° F., stiffened gait, either a dry nose or mucopurulent nasal exudate, a soft or an occasional hacking cough, increased respiration rate, diarrhea, weight and condition loss, loss of appetite, shivering, swollen and watery eyes, swollen tongue, drooling and slobbering due to irritation of tongue and throat, bloodstained discharge from nostrils, strings of mucous hanging from mouth, small hemorrhages or blood spots beneath the lining membranes of nostrils and characteristic neutropenia associated with elevated temperature (1, 6, 9).

The edema swellings under the skin of the throat and dewlap, which were commonly reported at one time, seem to be observed less often in recent years (1).

In some years the disease will follow a mild course and affected animals usually recover in several days to a week, sometimes without treatment, unless pneumonia develops. However, those acutely affected may die in less than 24 hours, or linger for several days or weeks (1, 6, 9). When they do, they are apt to be unthrifty (1). Chronic pneumonia results in some cases and may terminate fatally after three days to several weeks (1, 6, 9).

Similarities often confuse . . .

That a disease indistinguishable from shipping fever appears occasionally in herds where there is no obvious predisposing factor is well known to practitioners (3). It is important to differentiate between shipping fever and several that might confuse the diagnostic picture. Some diseases that might lend to the confusion include: pneumonia, anthrax, blackleg, certain intoxications, mild digestive disorder, malignant edema, spontaneous septicemia, the asiatic form of hemorrhagic septicemia, infectious rhinotracheitis, virus diarrhea, mucosal disease, leptospirosis and possibly others. Because of the serious nature of the diseases mentioned, the diagnosis, treatment and methods of control should be promptly delegated to a veterinarian (1, 2, 3, 4).

A diagnosis is indicated . . .

A diagnosis of shipping fever is indicated when a respiratory illness, accompanied by a high temperature occurs in cattle that have been shipped within about 10 days. Bacteriological examinations including blood tests, animal inoculations or tissue cultures may be required to differentiate shipping fever from some of the diseases that show similar symptoms. There is, however, no definite laboratory test for shipping fever, and the diagnosis should be left to the experienced veterinarian (1, 6).

Pathological findings . . .

In one study in which cattle had died of shipping fever in a Colorado feedlot, 57 of the dead cattle were examined for gross and histopathological changes. Some of the observations noted were:

Of the lungs examined, 93 per cent showed bilateral pneumonia, while only 3.5 per cent presented a unilateral pneumonia (2).

Fifty-eight per cent of the lungs showed consolidation in the lower one-third to two-thirds, 29.8 per cent showed consolidation involving one-third, and 8.8 per cent showed consolidation of over two-thirds of the lung tissue (2).

A total of 29.8 per cent showed hemorrhage into the major bronchi on gross examination. Histopathologically, hemorrhage into the bronchi and bronchioles totaled 83.3 per cent (2).

Observations indicated that shipping fever begins with a severe congestion of the lung followed by inflammation and an outpouring of exudate into the bronchioles and alveoli. This is accompanied by atelectasis and emphysema in the portions of the lungs adjacent to the pneumonia areas. A severe bronchitis and bronchiolitis with hemorrhage into the lumen of the bronchi and bronchioles occurs simultaneously (2).

Of the acute uncomplicated cases of pneumonia, 100 per cent showed thrombosis of the lymph vessels draining the lungs (2).

Thrombosis of the vascular system was common, leading to infarcted areas and gangrene (2). Cases of shipping fever of long duration showed many secondary complications such as gangrene, abscesses, and fibrosis (2).

Changes in organs and tissues outside of the respiratory system are probably a result of toxemia or septicemia (2).

No virus inclusion bodies were seen in any of the tissues examined (2).

In another study to determine the blood cytology of cattle affected with shipping fever and to compare it with the blood cytology of healthy cattle the following was revealed:

The difference between the shipping fever infected cattle and the normal group indicated a significant increase in total erythrocytes, total leukocytes, band cells and metamyelocytes in the shipping fever group. The percentages of segmented neutrophils, lymphocytes, monocytes, and eosinophils decreased to a significant degree in the shipping fever group (14).

The lesions found on postmortem examination are confined chiefly to the respiratory organs. The character of the changes and the extent of involvement of other organs depend on the complicating infections (1).

Considerations for prevention, control . . .

In considering measures for the control and prevention of this disease, it is important to remember that shipping fever is the most serious of a group of cattle maladies which commonly result from mishandling, neglect, or exposure of animals in transit or shortly after their arrival at their destination.

Elimination of predisposing factors is important. When making additions to a herd, it is advisable to isolate new stock for at least 10 days (6).

In the shipment of cattle from farm to market observe the following precautions:

Avoid hard driving and allow ample time for rest before loading (1).

Avoid overcrowding cattle in cars. In severe weather, it may be well to line sidewalls of cars with a heavy paper, especially if cattle are young or unthrifty (1).

Feeder cattle arriving at their destination should be given a fill of dry roughage. After having access to this roughage for a few hours, they should have water, but not all they will drink. After the first day give free access to dry roughage and water (1).

Handle animals as little and as quietly as possible for a day or two before shipment, during shipment and for at least two weeks after shipment. Above all, no operations, such as dehorning or castrating, should be done at this time (1).

After shipment, range cattle should be allowed to rest quietly where they have access to good windbreak and a dry place to lie. Well-bedded, open sheds are preferred. If any sick animals are present, the others have little chance of avoiding infection (1).

For the first few days, feed should be similar to that which the animals have been eating. A nutritious ration to sustain resistance is essential, but changes to richer feed should be made gradually (1).

Stables, feed bunks and tanks that may have been contaminated should be thoroughly cleaned and disinfected as soon as the animals recover, or are removed (1).

To avoid losses from shipping fever in cattle, the chief reliance should be centered on buying healthy animals, avoiding infected yards and vehicles, preventing stress factors, and providing prompt treatment for the herd at the first sign of infection (1).

For many years attempts to prevent shipping fever were confined chiefly to use of vaccine and serum. The products still have many advocates, but controlled experiments indicate they have little, if any, value. There is much field evidence of their inefficiency (1, 7, 11, 15).

After extensive experiments, it was reported that shipping fever was as common and severe in animals that received the recommended dosage of serum as in the untreated controls (1).

In trials using oral oxytetracycline (Terramycin) in an aggregate of 35,400 animals, it was found that in groups receiving the antibiotic in water or feed for five days prior to shipping the number requiring subsequent treatment was small—from 1.6 to 3 per cent (16).

Therapy is successful . . .

When possible, affected individuals should be segregated. Temperatures of the herd should be taken three times a day, and any animal showing a temperature increase should receive treatment at once. Of the various treatments, good results can be obtained with penicillin and streptomycin in combination, at a dosage schedule which maintains effective blood levels for at least 48 hours. Good results can also be obtained with 1 mg. of oxytetracycline per pound of body weight when given intravenously. Sulfamerazine or sulfamethazine, at the rate of 1 gr. per pound of body weight, has been found to be effective.

Antiserum is of little value in treatment. Without good ventilation where cattle are housed, little can be done to prevent the spread of the disease. However, if the ventilation is sufficient to control excessive moisture, the affected individuals can be treated, and good results expected. Temperature can be as low as freezing, but when this is the case the animals should not be held in stanchions. They should be allowed to roam and be provided with adequate amounts of good bedding. Drafts should be avoided (17).

In the past a wide variety of treatments have been tried and discarded, suggesting that they have not proved satisfactory (4).

Penicillin is used in the treatment of shipping fever. Where 70 per cent of the control groups developed temperatures of more than 104° F. during a five day period the penicillin tested groups had 13.8 per cent of the animals develop temperatures of more than 104° F. (9).

In a Canadian trial it was reported that treatment of shipping fever with sulfamethazine and streptomycin was generally efficacious. However, when no response was obtained from this treatment, oxytetracycline was given intramuscularly each day for three or four days with good results (7).

In another trial, it was pointed out that cellular dehydration appears to be a prominent factor in shipping fever; therefore a successful treatment must be twofold; it should stimulate an increased water intake, and it must also combat the infectious agents (5).

Water was warmed to 60° F. and some electrolyte material was added to the water. For individual treatment, two forms of oxytetracycline were used—for intravenous injection and for intramuscular injection. As the shipping fever outbreak progressed to epizootic proportions, the effective therapeutic value of oxytetracycline became apparent because of the high recovery rate of calves so treated (5).

Data also has been reported in 21 preventive trials and six treatment trials conducted with more than 30,000 cattle in commercial feedlots. Here oxytetracycline fortified feed helped to improve the recovery of cattle suffering from shipping fever. (17).

Trials indicate that the shipping fever complex can be controlled by feeding from three to eight days a supplement containing a high level of oxytetracycline. In preventive trials, further medication was required by 55 per 1,000 of 16,936 control cattle and by 12.8 per 1,000 of the 13,162 fed oxytetracycline. Deaths were 5.1 per 1,000 in controls and 1.6 per 1,000 in treated groups. Treatment studies in six lots in which the shipping fever complex was present at the start of the test revealed that medicated feed brought recovery in most cases (16).

It is suggested from these findings as a practical procedure to feed oxytetracycline for three to five days, or as long as eight days when required, as soon as the animals are received in the feedlots. The rate would vary with the size of the animals (16).

It is stressed, however, that in order to be sure of proper diagnosis and treatment an experienced veterinarian be consulted.

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These men did the work . . .

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Mississippi Publishes Annual Report On Experimental Work With Poultry

STATE COLLEGE, MISS.—A report on poultry research under way at the Mississippi Agricultural College Experiment Station during the past year was given recently by James E. Hill, head of the poultry husbandry department.

The report was published in a recent issue of Mississippi Farm Research, station publication. Among the trials were the following of interest to the feed industry:

Antibiotics in Laying Rations: Different levels of Terramycin, zinc bacitracin,, penicillin, and 3-Nitro were added separately and in combination to rations fed continuously and intermittently to Single Comb White Leghorn hens in cages (30 hens per treatment). Thirteen of the 14 groups which were fed rations containing the additives laid more eggs than the control group. The group that was fed a ration containing 100 grams of Terramycin plus 100 gm. of zinc bacitracin per ton of feed the first five days of each month had the highest rate of production and the lowest feed cost per dozen eggs. Mortality and culling rate were approximately the same for all groups.

Effects of Lights and Restricted Feeding, Prior to Maturity, on the Performance of Laying Hens: The use of all-night lights during different periods from 0-8 weeks of age did not seem to have any appreciable effect on age at sexual maturity or egg production. Groups on 75% full feed to 26 weeks of age and 50% full feed to 20 to 26 weeks of age reached 5% production from 12 to 35 days later and laid fewer small and peewee eggs than the full fed groups. Mortality to 20 weeks of age was highest for the group receiving 50% full feed.

Cages Versus Conventional Floor Practices on the Supply and Quality of Commercial Eggs: In tests involving a comparison of cages, floor and floor replacement for egg production, the following results were obtained: Total egg production was in favor of the floor replacement group. Percent mortality was highest in the floor replacement group and number of culls was highest in the cages. There seemed to be little correlation between the groups in regard to egg quality. Egg size was in favor of the cage operation; hens in cages produced approximately 16% more extra large eggs.

Improvement of Pigmentation Through Feed: A dietary xanthophyll level of 6.25 milligrams per pound was found to be adequate for the pigmentation of broilers providing a portion of the xanthophyll was furnished by yellow corn. Results from one trial indicated that the xanthophyll in alfalfa meal and corn gluten meal was only about one third as efficient for pigmentation as that furnished by yellow corn. However, yellow corn is a much poorer source of xanthophyll than either corn gluten meal or alfalfa meal. The results of analysis indicated that alfalfa meal (dehydrated, 17% protein), corn gluten meal and yellow corn contained about 90, 60 and 4 mg. of xanthophyll per pound, respectively.

Arsonic Compounds in Broiler Rations: The results from studies involving seven separate trials with growth stimulants indicated that zinc bacitracin, procaine penicillin, or a combination of these two antibiotics, at the 4 gm. per ton of feed level were all equally effective in increasing the growth rate and feed utilization of broilers. The arsenical, 3-nitro-4 hydroxyphenylarsonic acid, at the 45 gm. per ton level was equally as effective (if not more) than the above mentioned treatments in improving the performance of broilers.

Evaluaation of Whole Croaker Fish Meal in Poultry Rations: Meal made from fish commonly called "croaker fish" was tested as a source of protein and unidentified factors for broiler rations. According to the results from two large trials, whole croaker fish meal is just as good as menhaden or sardine meal for practical type rations, when used on an iso-protein basis. In both trials, the birds receiving a ration containing either of the three fish meals were about 0.2 lb. heavier at eight weeks of age than the no-fish meal-fed birds. Fish meal at the 2.5% level appeared to be as adequate as the 5% level in promoting growth and feed utilization.

Degossypolized Cottonseed Oil Meal as a Substitute for Soybean Oil Meal in Poultry Rations: In tests with starting turkeys, degossypolized cottonseed meal significantly decreased growth when it replaced all of the soybean meal in rations. Likewise, feed efficiency was depressed at the 100% substitution level. At the 50% level of substitution, degossypolized cottonseed meal actually appeared to improve the performance of the birds. Part of the growth-suppressing effect of the high level of degossypolized meal could be alleviated by the addition of lysine to the ration; however, even at the highest level of supplementary lysine (0.2%), growth rate and feed utilization were poorer than that of the birds fed a ration containing soybean oil meal. The addition of methionine and tryptophan to the ration was of no benefit.

Genetic Differences as Related to Nutritional Requirements of Laying Hens: Leghorn and New Hampshire heavy type hens maintained in individual cages were found to require a ration containing a calorie-protein ratio of approximately 60:1 and 72:1, respectively. The fact that the light-type birds laid at a much higher rate than the heavy-type birds probably accounts for the relatively higher protein requirements.

Grit in Poultry Feeding: Granite grit (free choice) significantly increased egg production and improved feed utilization of White Leghorns fed either a complete mash or mash and whole grains. But, the system of feeding (mash or mash-grain) or the energy level of the ration was found not to influence total egg production. Feed utilization tended to be poorer when the mash-grain system (mash and grain fed on a free-choice basis) of feeding was used.

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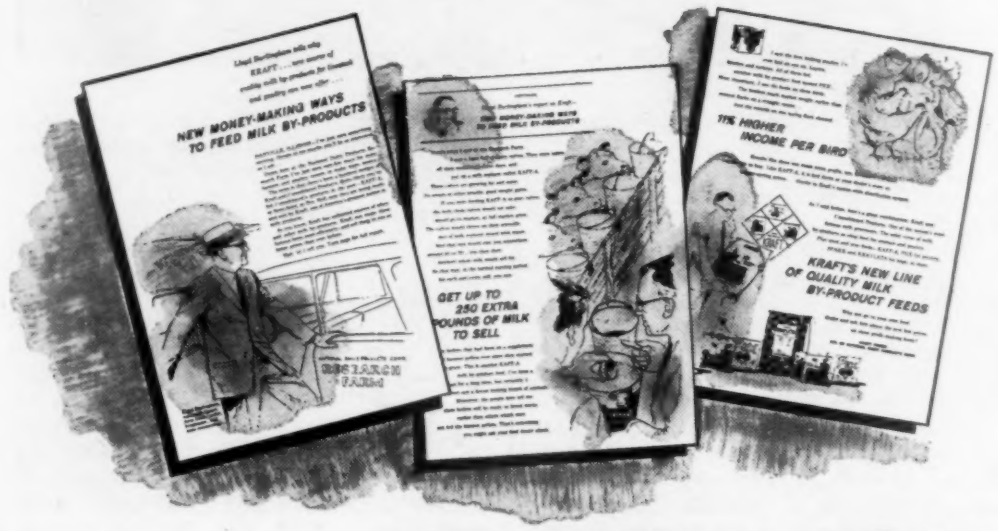
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Industry Men Invited To Join Animal Production Society

The American Society of Animal Production points out that it is interested in increasing its membership among qualified representatives of the feed industry.

According to Dr. W. H. Burkitt, director of nutrition for the Montana Flour Mills Co. at Great Falls, and a member of the ASAP membership committee, membership is open to all persons engaged, or previously engaged, in investigation, instruction or extension in animal production, or in the production of livestock products.

He said the purpose of the organization is: "To afford opportunity for the exchange of ideas in the instruction and extension in animal production; to arrange for cooperation and avoid duplication in investigational work; to recommend the adoption of new practices; to publish educational and scientific material of value to members and other workers in the animal industry field."

Annual dues in the U.S. and Canada are $5, which includes a subscription to the Journal of Animal Science. This quarterly publication reports primarily on feeding, nutrition, breeding and management of beef cattle, sheep and swine.

In addition to the annual meeting held each year in Chicago following Thanksgiving, annual sectional meetings are held in the north Atlantic states, the southern states and the western states.

Membership is about 2,000, including personnel from agricultural colleges, state and federal experiment stations, extension service, livestock producers and the formula feed industry.

Those interested in applying for membership in the society may do so by requesting an application form from Dr. William H. Burkitt, director of nutrition, Montana Flour Mills Co., Great Falls, Mont.

USDA Announces Sanctions on Firm

WASHINGTON—The U.S. Department of Agriculture has announced issuance of a consent order by Thomas J. Flavin, USDA judicial officer, imposing sanctions on Continental Grain Co., Chicago, Julius Mayer, an excutive vice president of the company, and Selwyn S. Unell, a floor broker, on charges of violating the Commodity Exchange Act. The sanctions become effective Nov. 21.

Mr. Flavin's order suspends the registration of Continental as a futures commission merchant for 90 days, and for the same period directs the Kansas City Board of Trade to refuse Continental all trading privileges in wheat, and the Chicago Board of Trade to refuse the company all trading privileges in corn.

The order suspends for 90 days the registration of Julius Mayer as a floor broker, and directs refusal of all trading privileges to him on all contract markets for the same period.

The registration of Selwyn S. Unell as a floor broker is suspended for 30 days by the order, which directs the denial to him of all trading privileges on all contract markets for the same period.

A complaint under the Commodity Exchange Act, filed April 30, 1956, charged that Continental manipulated the price of wheat futures on the Kansas City Board of Trade on Jan. 26, 1955, and Nov. 30, 1955. A complaint of May 12, 1958, charged that Continental, Julius Mayer, and Selwyn S. Unell manipulated the price of cash corn and of corn futures on the Chicago Board of Trade on Sept. 13, 1957.

Hearings on the earlier complaint were held in Kansas City and Chicago in 1956 and 1957. Hearings on the later complaint were scheduled to begin in Chicago on Nov. 18. The company and the two individual respondents waived all further proceedings and consented to issuance of the order.

Robert D. Wisdom

JOINS BORDEN'S — The appointment of Robert D. Wisdom to the sales staff of the Borden Co.'s animal feed supplements department has been announced by Richard D. Sanders, director of sales and marketing for the department. Mr. Wisdom will serve as manager of the mountain and Pacific states sales territory, and he will headquarter in Los Angeles. Before joining the Borden Co., Mr. Wisdom served as a field representative and salesman for the Loudoun County Milling Co., Purcellville, Va., a subsidiary of the Wilkens-Rogers Milling Co., Washington. He received a bachelor of science degree from Oklahoma State University in 1953 and later engaged in graduate work in animal nutrition while serving as a graduate assistant at the same college.

NAMES OFFICIAL WEIGHER

MEMPHIS — R. J. Faehner, Brownsville, Texas, has been appointed an offical weigher and inspector of the National Cottonseed Products Assn., Inc., it was announced at headquarters here.

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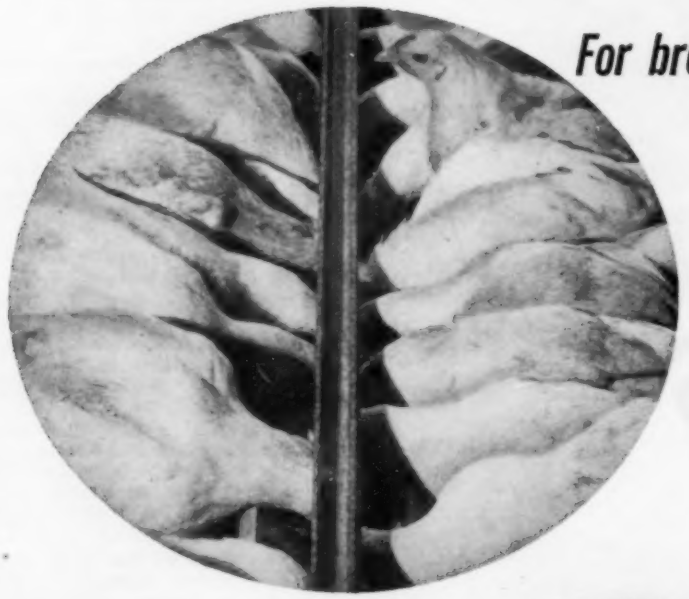

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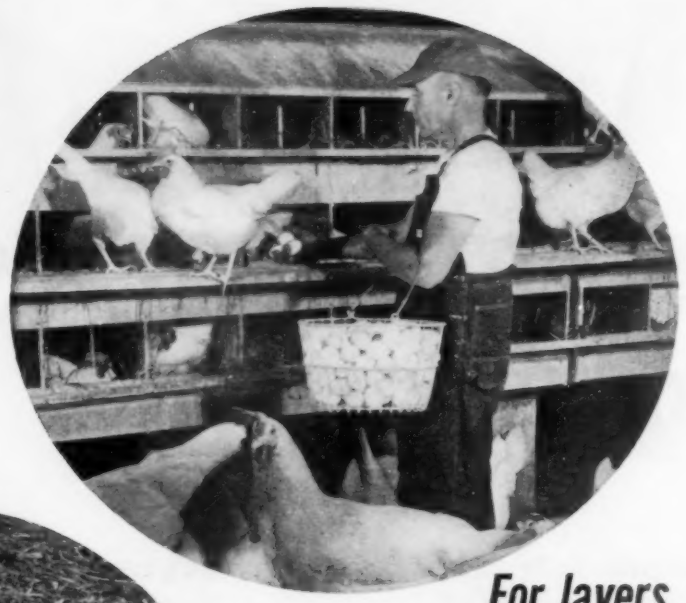

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Swine Marketing Conference Planned In Iowa Dec. 5

AMES, IOWA — Officers of the Iowa Swine Producers Assn. and Iowa State College have announced plans for a Midwest Swine Marketing Conference here Dec. 5.

Marion Steddom, Granger, president of the swine producers, and Dr. Leslie Johnson, head of the Iowa State College animal husbandry department, said plans for the program were outlined by producers and college specialists.

Mr. Steddom and Dr. Johnson said the conference will be public. All interested will have an opportunity to present questions and offer comments. They pointed out that particular efforts will be made to have at least two or more representatives present from each county in Iowa. Research and educational phases of the program are being arranged by the college animal husbandry and economics departments.

Those to whom special invitations are being sent include college and university livestock specialists and economists from the hog-producing midwestern states, swine producers, farm organization representatives, meat packers, and representatives of present swine marketing industries and groups.

Mr. Steddom and Dr. Johnson said the object of the conference is to find methods of improving swine marketing for the benefit of farmers. Mr. Steddom said some attention may be given to the farmer-controlled swine marketing program in Canada.

The conference is to look at market improvement possibilities through reports of specialists in Midwest states and other countries. Central marketing, producer-owned markets, cooperative markets, concentration yards, integrated industry-controlled markets and others are to be considered.

The object, Mr. Steddom and Dr. Johnson said, is to bring together as much as possible all of the thinking of livestock men, economists, producers, organization and industry people regarding the farmer's growing hog-marketing problem. The main question before the conference will be "What adjustments have to be made in marketing to give the producer his proper place in the market?"

The two officials said they believe it's important to get all the available facts on the possible choices before committing resources to long-term marketing projects.

Cooperative Announces "Chain of Integration"

EAGLE GROVE, IOWA — A new feed mill completed in June and a controlled quality egg program scheduled to open early in October will form an integrated chain for the cooperative Boone Valley Processing Assn. of Eagle Grove.

The Cooperative Consumer, a Kansas City cooperative publication, described the chain as follows: "A farmer can sell soybeans to Boone Valley where the beans, with animal protein and fats from Consumers Cooperative Assn.'s rendering plant, which utilizes the by-product of the farmer's animals, are formulated with other ingredients to make one of the many co-op open formula feeds.

"This same farmer can then buy the feed for his laying hens. Eggs from these hens go back to Boone Valley's new processing plant, where they are candled, graded, packaged, stored and shipped to food stores."

The association's new feed mill began operations June 1, increasing the plant capacity seven times. Annual production will be around 75,000 tons. Chuck Bartley, manager of the feed department, said the plant is the only one in the surrounding territory that handles not only bulk feed in quantity, but bulk ingredients as well. Bulk storage capacity is 1,400 tons.

A new 66 by 202 ft. clay tile building houses the Boone Valley Cooperative egg program. The plan is designed to handle 4,000 cases a week based on an eight-hour day. Starting with a staff of 10, the plant may employ as many as 30 or 40 persons when it reaches full capacity, it was announced.

Dick Pulse M. E. Martin

JOIN HUBBARD — The addition of Dick Pulse and M. E. Martin to the Iowa sales force of the Hubbard Milling Co., Mankato, Minn., has been announced by Ogden P. Confer, head of the company's feed division. Mr. Pulse is working in the central Iowa territory and is stationed at Eldora. Mr. Martin's territory is west central Iowa. He is living at Adel. Mr. Pulse, an Iowa State College graduate, has taught vocational agriculture in Iowa, farmed for two years, and has for the past eight years been extension director in Hardin County. Mr. Martin is a 1950 graduate of Simpson College, and has worked as a salesman for the Iowa Packing Co., and was for five years associated with Brown's Turkey Hatchery at Indianola, Iowa. He is a director of the Iowa Turkey Federation.

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Since roughages are a variable source of this essential vitamin, a new significance is put on heavy vitamin D fortification of feeds with Fleischmann's FIDY Irradiated Dry Yeast.

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You can now offer special rations or FIDY itself as an aid in preventing Milk Fever. Several feed manufacturers offer a special Milk Fever prevention ration containing FIDY to help complete their line of dairy feeds and provide another service to dairymen.

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MORE Questions farmers ask about vitamin D nutrition

Q: Would more vitamin D help keep my good producing cows in the herd longer?

A: The exact requirements of dairy cows for vitamin D are not known. Research with radioactive materials indicates that the ability to absorb and utilize calcium decreases markedly as cows become older, also that the availability of calcium reserves decreases with age. Since vitamin D is needed for the efficient use of calcium and also of phosphorus, it would appear that more vitamin D (up to 6,000 to 8,000 units per pound of regular ration) plus adequate calcium and phosphorus may help cows to produce profitably longer.

Q: When feeding massive doses of vitamin D_2 for milk fever prevention, should all cows in my herd be included?

A: No. For efficient herd management, only those cows with a previous history of milk fever or mature cows in herds where the incidence is high should be fed the massive doses of 30,000,000 units of vitamin D_2 per day for 5 to 7 days before freshening.

Q: How much vitamin D should my calves be getting?

A: According to work at the Pennsylvania Experiment Station, a minimum would be 400 to 500 units for each 100 pounds of body weight. Better growth and better looking calves were obtained when an additional 2,000 units of vitamin D per 100 pounds of body weight were added. Customary levels of vitamin D fortification for calf meals usually range from 1,000 to 4,000 units per pound of feed.

Q: Is vitamin D needed for protection against stress factors in swine feeding?

A: Yes, indeed. Rapid growth, early weaning, large-scale feeding operations under dry-lot and confinement conditions all create nutritional stresses in growing pigs which must be met by more highly fortified feeds, including adequate vitamin D. Multiple farrowing, large litters, and thyroprotein feeding to stimulate milk flow are examples of stress factors in sows for which ample vitamin D is indicated.

Q: How much vitamin D should my growing pigs be getting?

A: Increased rate of growth, early weaning, and confinement rearing as practiced in modern swine management indicate a need for more vitamin D. Further studies on vitamin D requirements of pigs under these conditions are needed. Many nutrition authorities recommend the fortification of pig starters and growing — fattening rations at about 500 units per pound of complete ration with somewhat higher amounts for the early weaned pig.

S. C. Wallis

Have You a Question?

If you have questions about animal nutrition concerning vitamin D fortification or Milk Fever prevention, write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Ave., New York 22, N. Y.

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in this report to Independent Feed Dealers

ISAAC S. RIGGS joined The Quaker Oats Company in 1923. A graduate of Iowa State College, he first worked with the noted Dr. O. B. Kent, long-time Quaker Feed Research Director. Advancing through the sales department, "Ike" was named a Quaker Vice President in 1953.

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Antioxidants in Feeds

A U.S. Department of Agriculture scientist discusses the use and effects of antioxidants as applied to livestock and poultry feed

By C. Ray Thompson
Western Regional Research Laboratory
U.S. Department of Agriculture

American Indians are reported to have stabilized bear grease against rancidity by heating with the inner bark of slippery elm, wild cinnamon or sassafras (1). Moureu and Dufraisse (2) in 1926 observed that a phenolic group was necessary in particular compounds to give antioxidant activity toward unstable materials. Later, two investigators, the late Dr. H. A. Mattill, University of Iowa, and one of his students, Dr. H. S. Olcott, conducted much pioneer work in the field of edible antioxidants. Excellent reviews of early work have been published by Lundberg (3), Lea (4), and Kraybill and Duggan (5).

Mattill (6) observed in 1931 that naturally occurring di-substituted phenols having hydroxyls ortho and para had antioxidant activity while meta-substituted compounds were inactive.

Olcott and Mattill (7) classified antioxidants into (A) acid types, (B) inhibitols and hydroquinones, and (C) phenolic inhibitols on the basis of their reaction on certain substrates.

Later studies showed that the "inhibitols" were principally tocopherols, and that the differences observed between them and the phenolics were due to impurities in the substrates and to pronounced synergistic effects of acid compounds on phenolic antioxidants.

Stabilizing Lard

Concurrently with these studies a group at Swift & Co., with Dr. R. C. Newton in charge, worked on the problems of stabilizing lard by the use of antioxidants. They patented the use of gum guaiac which contains a phenolic compound, quaicol, among other constituents. This product was the first material approved as an antioxidant for lard.

A few other naturally occurring compounds have been used successfully as antioxidants. Hardwood distillates containing mixed phenols have been used for stabilizing gasoline. The most widely used natural product for foods, principally edible fats, is nordihydroguaiaretic (NDGA) acid (8). This is derived from the creosote bush, Larrea divaricata, and occurs in leaves to the extent of 7%. This product has always been expensive—it sells presently for about $35 lb.—probably because of the difficulty of collecting the shrub, extracting the compound and purifying it.

Sesamol, a constituent of sesame oil, imparts enough stability to the oil that when the oil is added to more unstable fats they are preserved for some time (9).

Tocopherols were followed in isolation procedures as much by their antioxidant effect as by their vitamin activity. Tocopherols, either natural or synthetic, are presently used as antioxidants and vitamin E supplements in both foods and feeds. (The biological effects are beyond the scope of this symposium.)

Flavonols

Flavonols (10) have been proposed for use as antioxidants but are often poorly soluble in fats. To date little use is being made of these compounds although they have antioxidant activities equivalent to propyl gallate, and are presumably low in toxicity.

The general types of synthetic organic compounds used as antioxidants are:

1. Hydroquinone
2. 2,5-ditertiary-butyl-hydroquinone
3. 2,5-ditertiary-amyl-hydroquinone
4. NDGA
5. Catechol
6. Pyrogallol
7. Propyl gallate
8. Lauryl gallate
9. Amino phenols
10. Phenylenediamines
11. Hydroxyhydroquinones
12. Bisphenols
13. Dihydroquinolines

EDITOR'S NOTE: The material in this article was presented at a recent food additives symposium of the American Chemical Society in the agricultural and food chemistry section. The author is acting head of forage investigations, field crops laboratory, Western Utilization Research and Development Division, Agricultural Research Service, Albany, Cal.

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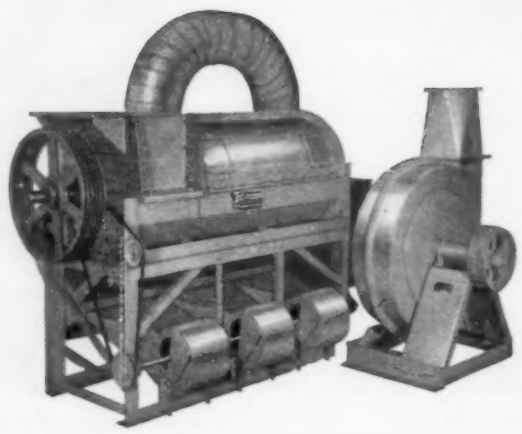

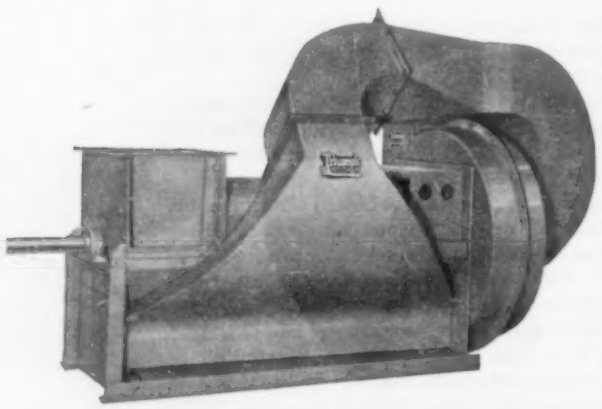

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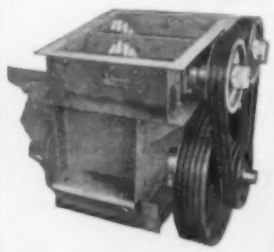

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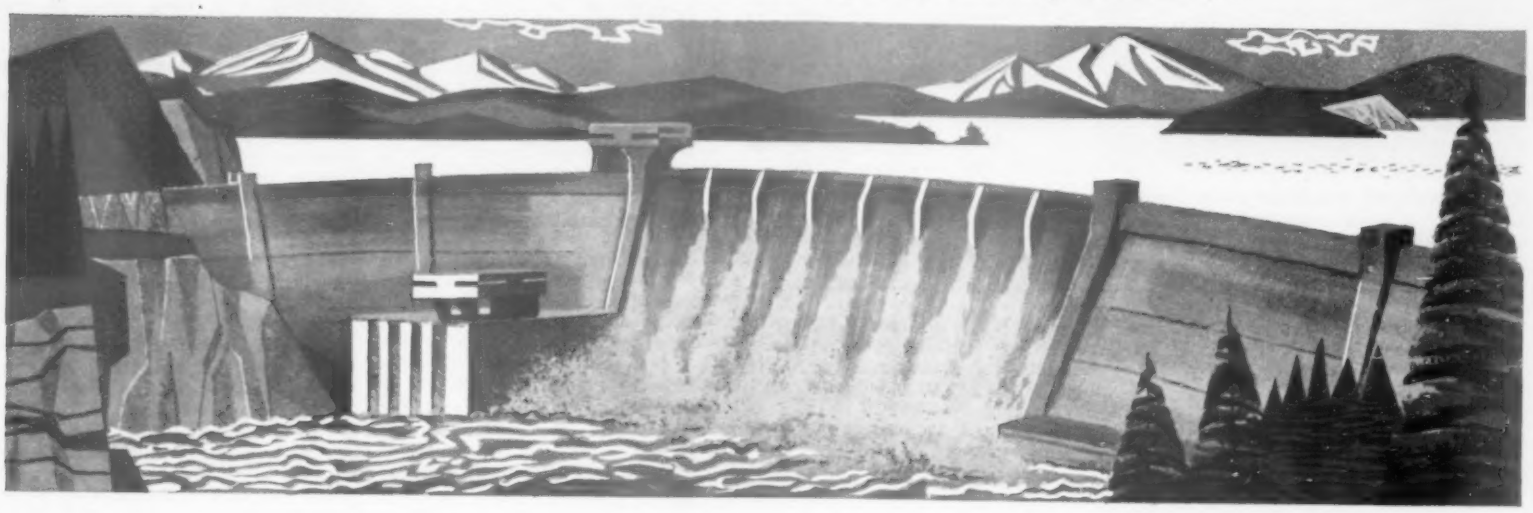

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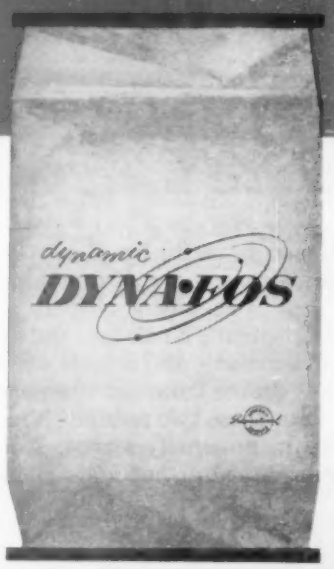

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MANAGEMENT RESEARCH—A research project at the Colorado State University is being conducted in this new turkey pole house. The study was set up to find how much floor space, water and feeder space a growing turkey needs.

14. Trihydroxyphenones
15. Reductones
16. Thiodipropionic acid

Synergists:

1. Phosphoric acid
2. Lecithin
3. Citric acid
4. Ascorbic acid

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Edible Compounds:

1. Resin guaiac
2. Tocopherols
3. Nordihydroguaiaretic acid (NDGA)
4. Butylated-hydroxy-anisole (BHA)
5. Butylated-hydroxy-toluene (BHT)
6. Gallates, propyl-lauryl
7. Thiodipropionic acid
8. Lecithin
9. Citric acid
10. Ascorbic acid
11. Trihydroxy-butyro-phenone

From the above list, four compounds—BHA, BHT, propyl gallate and citric acid—are used widely in preserving edible fats, pastry, crackers, potato chips and other foods containing appreciable quantities of fat.

Fats for Feeds

The increasing use of synthetic detergents has reduced demand for the poorer-quality animal fats for soaps to such a degree that these products have become competitive in livestock feeds on an energy and price basis with carbohydrate feedstuffs such as corn, wheat by-products, barley and milo. In 1952, 10 million pounds of fats were used in feeds and in 1957, 320 million pounds.

Today, one half of poultry feeds and one quarter of all livestock feeds contain added fat. Also, recent studies by animal nutritionists have shown that poultry, hogs and cattle tolerate fats well, often giving better, more economical gains than without fats. Varying amounts of fats up to 10% are now included in many feeds. Fats also give a brighter color to the feed, reduce dustiness and may aid in pelleting.

Stabilization of these lower-grade fats is of extreme importance because oxidizing fat in a feed not only gives poor palatability but will destroy essential nutrients such as vitamins A, E, and other labile factors.

Drs. Gearhart and Stuckey (11) also studied the stabilization of yellow grease by BHA, BHT, propyl gallate and citric acid. Propyl gallate singly was best, but BHA was nearly as effective. BHA plus citric acid was the most effective combination. In very poor products extra citric acid aided stability.

Recently (12) trihydroxy-butyrophenone was allowed for foods and feeds. This compound is slightly better than propyl gallate for animal fats, and is equivalent to it in vegetable oils. It is better than propyl gallate or BHT in deep-fat frying, but its carry-through in baked goods is poorer. It stabilizes yellow grease well. It has not been offered in volume to date, and is reported to be expensive to synthesize, perhaps twice as expensive as BHA.

Attempts to improve the stability of frozen turkeys (13) against oxidative rancidity by feeding tocopherols have shown that the antioxidant is absorbed to a limited extent, and that some improvement is possible. However, the turkey compares poorly with the chicken in its ability to deposit tocopherols in body fats. No use is being made of this finding at present.

Fish meal, which contains unsaturated oils, autoxidizes very rapidly when exposed to air. Enough heat may be generated to cause it to burn. BHT serves to overcome some of this autoxidation. About 80% of the menhaden meal produced is presently stabilized by this compound.

The difficulties encountered in finding antioxidants for use in animal feeds can be well illustrated by reviewing the rise and demise of DPPD - (N,N'-diphenyl-p-phenylenediamine). This compound was found to be a moderately effective antioxidant for the stabilization of carotene in dehydrated alfalfa meal by John Kephart, National Alfalfa Dehydrating & Milling Co. Moderately complete toxicity trials were conducted by Colorado State University, and its use was allowed in feeds. Its solubility was poor but with about 1% of oil, .015% of antioxidant

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could be applied to alfalfa meal. Later studies showed that inclusion of this compound in mixed feeds for various animals as a powder at .125% gave several beneficial effects. It improved yellow pigmentation of broilers (14), overcame the development of oxidized flavor in milk (15), prevented encephalomalacia in chicks (16), and improved absorption of carotene in calves (17).

However, its use was short-lived because it was found to cause abortions when fed to rats at relatively high levels, and its use was disallowed.

Dehydrated Alfalfa

The stabilization of carotenoids, tocopherols and other labile nutrients has been a very serious problem in dehydrated alfalfa, other dried forage meals and generally in mixed feeds.

Widespread production and use of stabilized synthetic vitamin A in animal feeds has now made the situation less critical, but even at present prices, dehydrated alfalfa contains about $20 worth of carotene per ton, and four times this value in its xanthophylls.

After six months of ordinary, unprotected storage, about 60% of these pigments will be lost. Under present conditions about 600,000 tons of dehydrated alfalfa meal is stored for an estimated four months. This will cause a loss of about 40% of the carotene and xanthophylls, and represents a $40-million loss of pigments if their value is calculated at present market prices.

Studies at the western regional laboratory have shown that none of the compounds now approved for use in foods or feeds, with the possible exception of trihydroxy-butyro-phenone, which has not been tested, is particularly effective in preserving fat-soluble nutrients in dehydrated alfalfa meal.

In 1949 a screening program of some 400 compounds representing phenylenediamines, aminophenols, bisphenols, hydroquinone derivatives and dihydroquinolines showed that substituted dihydroquinolines were most effective. Of these, 6-ethoxy-1,2-dihydro-2,2,4 - trimethylquinoline (EMQ) had the most desirable combination of properties. It is a syrup-like, straw-colored liquid, freely miscible with fats with a faint aromatic odor, and an essential-oil, pepper-like flavor. It darkens rapidly upon exposure to air.

EMQ Toxicity

Extensive toxicity trials have shown it to have an LD 50 of about .8-1 gm. per kg. in rats when injected, and 6-8 gm. per kg. when given orally to chickens. Long-term feeding trials with rats and poultry at 100 times the intended use or "normal" level have shown little effects in rats and poultry. At about 30 times the normal level slight liver damage was observed in dogs. Feeding EMQ at 100 times the normal level to calves and young pigs showed little effect. Administration of a large dose of the radioactive compound to a dairy cow showed it to be metabolized rapidly and excreted, principally in urine.

This antioxidant was allowed for use by the U.S. Food & Drug Administration in poultry feed only for several months, but has now been declared a poisonous and deleterious substance. Necessity for use will have to be proved before tolerances can be set. It is not currently being used but additional data are being presented to the FDA in an effort to obtain its clearance.

Several trials have shown that two substituted hydroquinones, 2,5-ditertiary-butyl-hydroquinone and the corresponding tertiary amyl compound, are about half as effective as EMQ on a weight basis for preserving carotene in dehydrated alfalfa. The solubility in oils is relatively poor.

Toxicity trials have shown the acute and chronic toxicities with rats and chicks to be low. The butyl compound is more toxic to poultry than the amyl derivative. The toxic symptoms are incoordination and erratic gait. These effects probably preclude the use of the butyl compound but more tests may establish that the ditertiary amyl compound is safe for use in some products, possibly poultry feeds.

BHT is much less effective than either DPPD or EMQ for preserving carotene in forage meals. It is currently being incorporated into feeds in an attempt to stabilize the fat-soluble vitamins. This is an unsolved problem. A critical demand and a large potential market still exist for a more effective antioxidant which will stabilize labile nutrients such as carotenoids in mixed feeds.

v v

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Research Suggests Ways to Improve Egg Shell Strength

COLLEGE PARK, MD.—Research at Maryland and Colorado indicates that supplemental zinc and vitamin C may possibly reduce economic losses due to poor egg shell quality.

Results of the work have been reported by Donald L. Blamberg, graduate student in the University of Maryland poultry department, in the Maryland Poultryman, a University of Maryland publication. He mentioned that further studies are needed before the findings can be completely evaluated.

Mr. Blamberg pointed out that for many years it has been known that the use of laying rations which are improperly fortified with such dietary components as calcium, phosphorus, manganese and vitamin D will result in thin-shelled eggs with poor resistance to breakage. He said it is also generally known that high environmental temperatures decrease the thickness of the chicken's egg, thereby lowering its breaking strength. Ralston Purina Co., St. Louis, in 1957 estimated that the monetary loss due to this condition in the U.S. may be as high as $100 million annually.

Zinc for Laying Hens

The work at Maryland involved a preliminary study of the role of zinc in the nutrition of the laying hen. "The results of this study indicate that a diet which is deficient in zinc will result in thin-shelled eggs. The diet used in this study was a highly purified experimental ration and was especially formulated to be deficient in zinc," Mr. Blamberg explained. "Thus, this particular experiment only demonstrates a function of zinc in egg shell formation and does not indicate the need for supplementing practical-type laying rations with zinc.

"This fact was confirmed in another study in which supplemental zinc failed to improve the shell quality of eggs laid by hens which were fed practical rations. However, this second study had to be concluded before the birds were exposed to high summer temperatures. Thus, it is apparent that more work must be done under conditions of elevated temperatures before the question of supplemental zinc for practical laying rations can be fully answered."

Mr. Blamberg reported that Drs. P. A. Thornton and R. E. Moreng at Colorado State University have recently conducted experiments concerning the effect of vitamin C in the diet of the laying hen, and that other workers had previously demonstrated that calcium metabolism is disturbed in guinea pigs, monkeys and humans in cases of a vitamin C deficiency.

"It is well known that the chicken is able to make its own vitamin C under normal conditions; thus, it is generally believed that the diet of chickens need not contain supplemental vitamin C. The Colorado workers suggest the possibility that a hen's ability to synthesize vitamin C may be retarded during periods of stress such as that produced by high environmental temperatures," Mr. Blamberg said.

The ration used by the Colorado group was a practical corn-soybean laying diet. Under normal environmental temperatures, the addition of 10 mg. of vitamin C per pound of ration failed to result in improved shell quality. However, when these birds were transferred to a room in which the temperature was held at 80-82° F., the same amount of supplemental vitamin C appeared to improve shell quality. The group of birds receiving additional vitamin C laid eggs with slightly thicker shells and had approximately 17% more eggs with sound shells, as determined by a test of breaking strength, according to the Maryland research.

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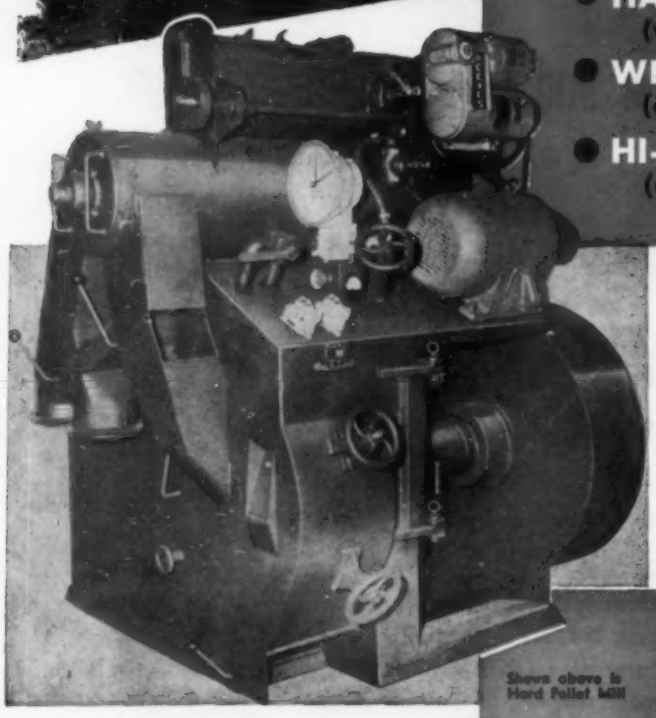

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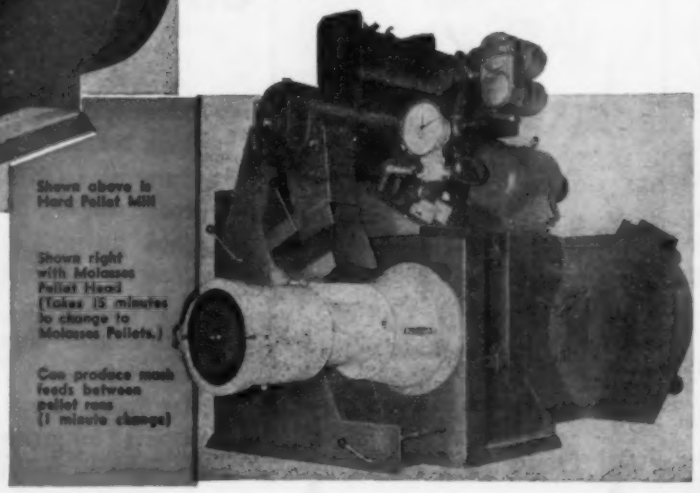
- HARD PELLETS (with or without liquids)
- WENGERBLENDED MASH FEEDS (one or two liquids)
- HI-MOLASSES PELLETS (optional)

Wenger's NEW MULTI-DUTY PELLET MILL
(50-75 H.P. or 100-125 H.P.)


Shown above is Hard Pellet Mill
Shown right with Molasses Pellet Head (Takes 15 minutes to change to Molasses Pellets.)
Can produce mash feeds between pellet runs (1 minute change)

Versatility-

Versatility available only with Wenger Multi-Duty means maximum utilization of manpower, horsepower, and equipment every minute of every working day. Minimum investment in a single Wenger-built unit capable of producing every major type of feed in demand today... Hard Pellets... Pellets with Wengerblended Liquids... Mash Feeds with one or two liquids... Hi-Molasses Pellets.

The same motors, starters, and cooler for every type of pellets or mashes. Single or multiple liquid application is optional equipment, but liquid conditioning tank, steam coils and liquid plumbing is standard equipment built into every Wenger Multi-Duty. Feeder extension is optional equipment so Multi-Duty can be fed from either of two overhead bins for one minute formula change or change to mash feeds.

BASIC INSTALLATION:
Hard Pellet Mill and Cooler

Optional processing equipment available with initial installation—or later—for complete Multi-Duty operation:

1. Meter Flow Pump for Molasses MASH FEEDS
2. Second Meter Flow Pump for MULTI-BLENDING
3. Conversion Extruder for HI-MOLASSES PELLETS

Write or Phone TODAY

Wenger Mixer Mfg. Co.
Sabetha, Kansas Phone 111
Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment

Program Announced For Annual Arkansas Poultry Study Day

FAYETTEVILLE, ARK.—Pelleting versus mash feed, nutrition of cage layers, and growth stimulants will be among topics highlighted at the second annual Poultry Study Day here Oct. 24 at the University of Arkansas Agricultural Experiment Station.

The program will get under way at 9:30 a.m. in the Animal Science Building on the university campus, according to R. M. Smith, poultryman in charge of arrangements.

Dr. L. S. Ellis, dean and director of the College of Agriculture and Home Economics, will lead off by forecasting the future of the Arkansas research program. Dr. Warren Gifford, head of the department of animal industry and veterinary science, will preside over the day's activities.

Douglas Hamm, research assistant, will compare pelleting with mash feed for poultry; Tommy Goodwin, graduate assistant, will cover nutrition of cage layers, and Dr. E. L. Stephenson, animal nutritionist, will talk about growth stimulants.

Poultry breeding research will be reviewed by Dr. N. R. Gyles, associate poultryman. Prof. Smith and T. R. C. Rokeby, assistant agricultural engineer, will team up to report on research in broiler housing. The morning session will be concluded with a discussion on the outlook and pricing of poultry products by W. J. Windham and Hillard Jackson, both assistant agricultural economists.

Following lunch, served by student members of the Animal Industry Club, Dr. E. H. Peterson, associate veterinarian, will tell how to control air sac disease, and Lowell Lankford, extension poultryman, will give tips on management problems. A tour of the Animal Science Building and the poultry farm will climax the agenda.

All people interested in the poultry industry are invited to attend the educational event, Prof. Smith said.

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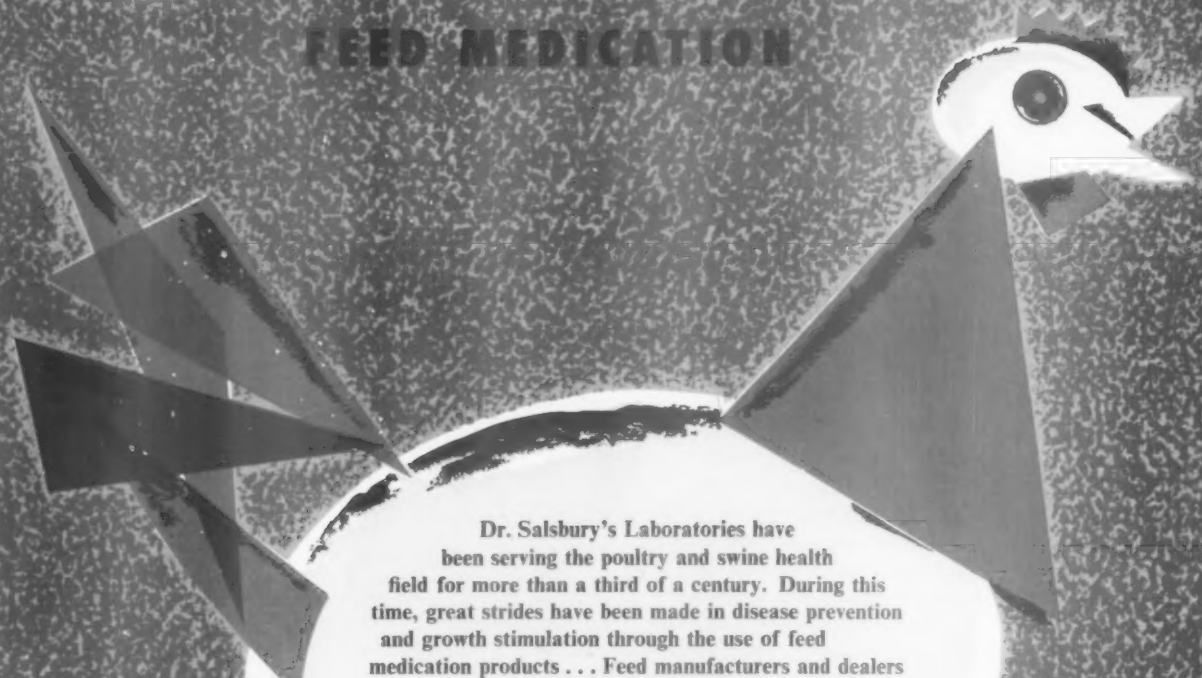
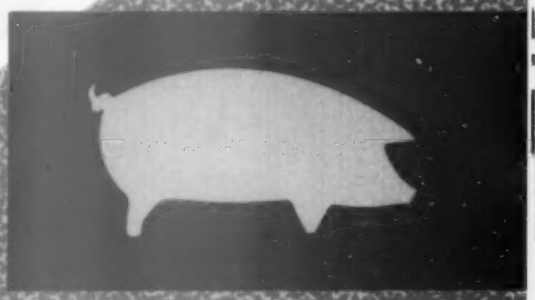
5 Milestones

ON THE ROAD TO MORE EFFECTIVE FEED MEDICATION



Dr. Salsbury's Laboratories have been serving the poultry and swine health field for more than a third of a century. During this time, great strides have been made in disease prevention and growth stimulation through the use of feed medication products . . . Feed manufacturers and dealers are especially concerned with preventive medication. This brochure describes five of Dr. Salsbury's feed products—milestones on the road to more profitable production through more effective feed medication.



Selected information about disease-preventing

FEED PRODUCTS

Dr.

SALSBURY'S LABORATORIES

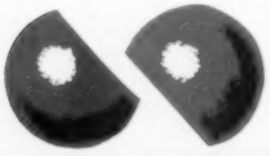
Dr. SALSBURY'S

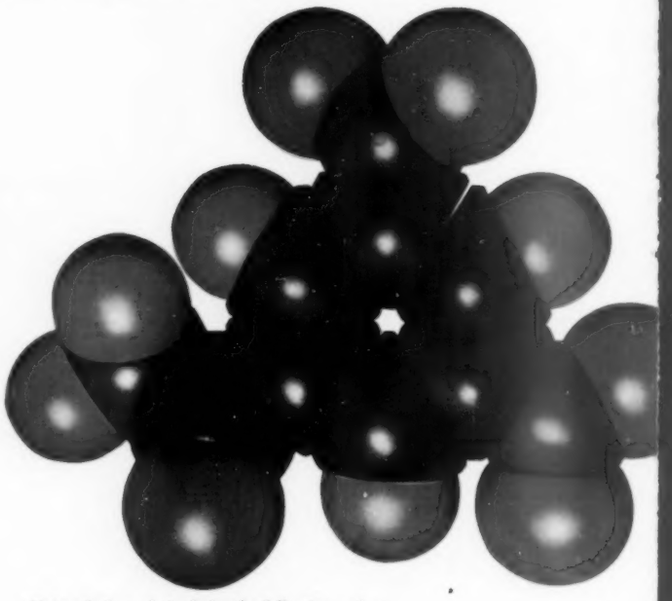
Unistat®

. . . FOR CHICKS, BROILERS AND GROWING CHICKENS

Unistat, the newest member of the growing family of Dr. Salsbury feed additives, was developed in responsive to demands for a more effective—and safe—coccidiostat. Many months of study and research, including both laboratory tests and field trials, have proven Unistat's superiority when fed regularly to chicks, broilers and growing chickens. This new and different coccidiostat is entirely safe when used as directed. Unistat birds have consistently gained faster—on less feed per pound of gain and with less mortality and morbidity.

Physically, Unistat is a yellowish, free-flowing powder that blends easily where commercial mixing equipment is used. Chemically, physically and biologically, Unistat is compatible with minerals, vitamins, antibiotics and other normal feed ingredients. It is palatable to birds. And best of all, Unistat's low cost and small dosage (2 lbs. per ton) combine to make it one of the least expensive coccidiostats.





Unistat's formula includes the following active ingredients: 3,5-Dinitrobenzamide, Acetyl-(para-nitrophenyl)-sulfanilamide, and 3-Nitro-4-hydroxyphenylarsonic acid. Shown above is the molecular structure or arrangement of 3,5-Dinitrobenzamide, the unique new chemical that gives Unistat its superior coccidiostatic qualities.

LABORATORY TESTED

Unistat was tested under the most rigorous laboratory conditions to determine its efficacy as a coccidiostat and its other effects on birds. The photo at left shows edible tissue samples of Unistat-fed birds being tested by radio-active tracer testing techniques to determine the rate and extent to which this new drug was eliminated, proving still further Unistat's complete safety.

A UNIQUE NEW COCCIDIOSTAT AND GROWTH STIMULANT... PROVEN EFFECTIVE ON MILLIONS OF BIRDS

Unistat contains a combination of active ingredients because no compound, complex or other single chemical entity has been found to be equally effective against all important species of coccidia in chickens. The multi-drug character of Unistat makes it of maximum value to the poultry raiser.

- PREVENTS COCCIDIOSIS
- STIMULATES GROWTH
- PERMITS IMMUNITY
- IMPROVES FEED EFFICIENCY
- IMPROVES PIGMENTATION

FIELD PROVED

Widespread field trials involving hundreds of thousands of growing birds have proved that Unistat provides a unique "balanced protection" against the economically important forms of coccidiosis. Unistat is being fed to many millions of birds annually, the number growing steadily as more and more poultrymen discover its many benefits.

Get the full story on Unistat

Because of your desire to provide superior feeds for your customers, you may wish more information about this new approach to coccidiosis control . . . about this new milestone along the road to profitable poultry production through more effective feed additives. Write, wire or phone today for your copy of Dr. Salsbury's Feed Manufacturer's Guide on Unistat. Or, ask for a Dr. Salsbury technical service adviser to call and personally answer your questions about using Unistat in chicken starter, grower and broiler feeds.

Dr. SALSBURY'S

2 Pol

A BROAD-RANGE HEALTH PROTECTANT

- **STIMULATES GROWTH**
- **INCREASES FEED EFFICIENCY**
- **PROTECTS AGAINST COCCIDIOSIS (ALL TYPES), LARGE ROUNDWORMS, TAPEWORMS, TURKEY BLUECOMB AND HEXAMITIASIS**

What is Polystat?

Polystat is a multi-purpose feed additive specially developed to provide today's poultry flocks with the above much-needed benefits. Polystat contains 3-nitro-4-hydroxyphenylarsonic acid and dibutyltin dilaurate, plus two other coccidiostatic compounds. Not only is it effective against a number of poultry diseases but it also reduces morbidity losses that accompany these diseases.

Experienced poultrymen, men whose livelihood depends on their being able to produce the most profitable flocks, start their birds on Polystat. Chicks and poults start faster, stay ahead. They grow into sturdier, healthier birds—the kind that return highest profits. Polystat cuts production costs, builds better birds, increases profitable returns. **Thousands of successful growers have established the fact that there is no other product available with the wide range of benefits supplied by Polystat.**

HERE'S WHERE POLYSTAT WAS TESTED

Shown here is an aerial photo of Dr. Salsbury's Research Farm where nearly 15,000 chickens and turkeys are housed. Research facilities and staff have grown steadily over the years. At present 60 employees, in Charles City alone, are engaged in research and the development of new products . . . further milestones in the never-ending search for better poultry and swine health.

ystat®

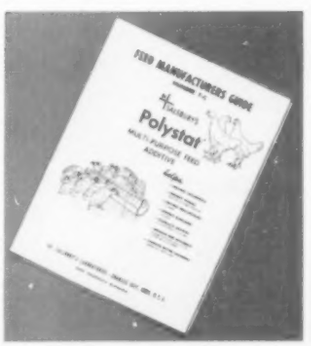
FOR CHICKENS AND TURKEYS

has other values

Chickens and turkeys that get Polystat continuously in their feed grow faster, do better. This is important, but it is not the whole story. Polystat has other values. For example, Polystat reduces the amount of subclinical (inapparent) disease in a flock and minimizes the effects of stress on poultry. There is less mortality, less sickness and better all-around health and appearance, when feeds contain Polystat. In addition, Polystat eliminates the need for a separate coccidiostat, a separate wormer, and a separate growth stimulant in the feed. Besides saving the direct cost of these separate feed ingredients, poultrymen save the cost of supplemental medication and morbidity losses that result from "breaks" or outbreaks that can occur when disease protection is not continuous and effective. There are many reasons for including Polystat in your chicken and turkey feeds. However, they all add up to the fact that today's poultrymen demand feeds that prevent a wide range of diseases and conditions. Polystat is such a product . . . a multi-purpose poultry health protectant.

WRITE, WIRE OR PHONE FOR COMPLETE INFORMATION

It is impossible to tell the full Polystat story here. The 50-page Feed Manufacturer's Guide No. 7C (shown at right) contains the complete facts that you may need to consider the use of Polystat. Write, wire or phone today for your copy. Or, ask for a Dr. Salsbury technical service adviser to call and personally answer your questions about using Polystat in your chicken and turkey feeds.



Dr. SALSBURY'S

3-Nitro®

Powder

- PROMOTES FASTER GROWTH AND BETTER PIGMENTATION
- IMPROVES FEED EFFICIENCY
- INCREASES EGG PRODUCTION
- REDUCES FLOCK DEPLETION

3-Nitro is the arsenical of choice among the nation's poultrymen. **Over half of the commercial broilers raised each year get 3-Nitro in their feed** because experience and tests have shown its use to be highly profitable. For example, in trials conducted by Combs and Laurent, involving 8,000 broilers at the Maryland substation, results indicated an average extra profit of $21.50 per 1,000 birds from the use of 3-Nitro. Other tests have shown laying flocks average 12 extra eggs per hen per year at a medication cost of only 3¢ per hen a year. Broilers have more "bloom" . . . layers have better health and appearance. 3-Nitro is safe, palatable, stable, and compatible (with normal feed ingredients). Normal dosage for all poultry is 1 lb. of 3-Nitro per ton of total feed consumed.

Here's where 3-NITRO was developed

Shown at left are Dr. Salsbury production center buildings, all new in the last 12 years. They include the pharmaceutical (right foreground), biological (left) and chemical buildings (right background). Dr. Salsbury's branch offices are located throughout the United States; products are also distributed in 30 foreign countries.

THE ARSENICAL OF CHOICE **for Chickens, Turkeys and Hogs**

- **REDUCES BACKFAT**
- **STIMULATES GROWTH**
- **IMPROVES FEED EFFICIENCY**
- **REDUCES NUMBER OF RUNTS**
- **GIVES MORE UNIFORM FINISH**
- **REDUCES DISEASE TROUBLES**

Swine raisers quickly recognized 3-Nitro as a valuable feed additive. Tests at Iowa State have shown that growing pigs average 16% heavier—*on 5% less feed*, with 3-Nitro in their ration. Fewer runts and better finish mean higher market price. These are real profit advantages, reason enough for 3-Nitro's popularity. Recently, however, another important benefit was discovered: Further research at Iowa State College indicated 3-Nitro significantly reduces backfat and improves carcass leanness, thus enabling farmers to greatly speed up the production of meat-type hogs. With the entire swine industry working toward the leaner pork demanded by consumers, this benefit alone is attracting even more farmers to 3-Nitro. For best results, use 3-Nitro Powder at the rate of ½ to ¾ lb. per ton of feed, from weaning to market.

WRITE, WIRE OR PHONE
FOR FEED MANUFACTURER'S GUIDE NO. 13-A

It tells the full story on 3-Nitro Powder and answers many questions about its use in swine and poultry feeds. Or, ask for a Dr. Salsbury technical service adviser to call and personally answer your questions about the use of 3-Nitro Powder.

Dr. SALSBURY'S

4 Histostat®

CONTAINS 25% 4-NITROPHENYLARSONIC ACID

- **HIGHLY EFFECTIVE.** In scientific tests and in millions of turkeys every year, Histostat has consistently provided a high degree of protection against blackhead.
- **PALATABLE.** Birds don't "back away" from Histostat.
- **ECONOMICAL.** Even on a continuous program, Histostat costs but a few cents a bird—2 turkeys saved will pay for medication for 100.
- **COMPATIBLE.** Can be used with other types of medications commonly used (except arsenicals)—with full effectiveness and without complications.
- **STABLE.** Histostat is a chemically stable powder—will not lose its effectiveness during handling or in storage. Unaffected by pelleting or other feed ingredients.

Every turkey needs protection against blackhead

Blackhead is still the No. 1 turkey disease, so far as dollar loss is concerned. Since there is no reliable cure for the disease and visible symptoms do not occur until a bird has been infected ten days or more, prevention is most important. Normally, Histostat medication starts at about 8 weeks of age, when the turkeys go out on range. If blackhead outbreaks occur earlier, Histostat is given from the start. And because there is no lasting immunity or build-up of resistance, treatment should be continued until a few days before marketing. Although experience has shown that every turkey needs protection against blackhead, such protection need not be expensive. Histostat costs so little (2 lbs. per ton) your growers cannot afford to be without the protection it affords.

The Most Effective and Economical Blackhead Preventive . . . SAFE and palatable for long-term medication

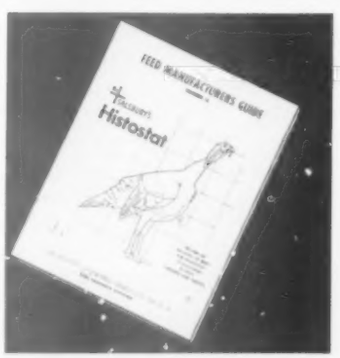
Champion Turkeys are Raised on Histostat

Winning 59 awards at the National Dressed Turkey Show is a remarkable achievement for birds fed Histostat. Of greater importance, though, is the extra profit which Histostat helps turkey raisers make. This makes champion birds where it counts—in the profit department. Histostat not only prevents blackhead for pennies a bird but it helps improve finish and carcass quality. That's why more and more growers are asking for Histostat in their turkey feeds.

BLACKHEAD PREVENTION IS ONLY WAY TO AVOID LOSS

Like so many other diseases, there is no reliable cure or treatment for blackhead. Truly, "an ounce of prevention is worth a pound of cure." The growing popularity of Histostat among poultrymen indicates their complete agreement with this old saying.

Performance-proved! . . . Histostat provides unparalleled protection against Blackhead.



FEED MANUFACTURER'S GUIDE No. 12

tells the full story of Histostat and how it can be used to formulate superior feeds for turkeys and chickens. Write, wire or phone for your copy today. Or, ask for a Dr. Salsbury technical service adviser to call and personally answer your questions about using Histostat.

Dr. SALSBURY'S

5 Wormal

MULTISPECIFIC POULTRY WORMER

Here's Why Growers Prefer Multispecific Wormers

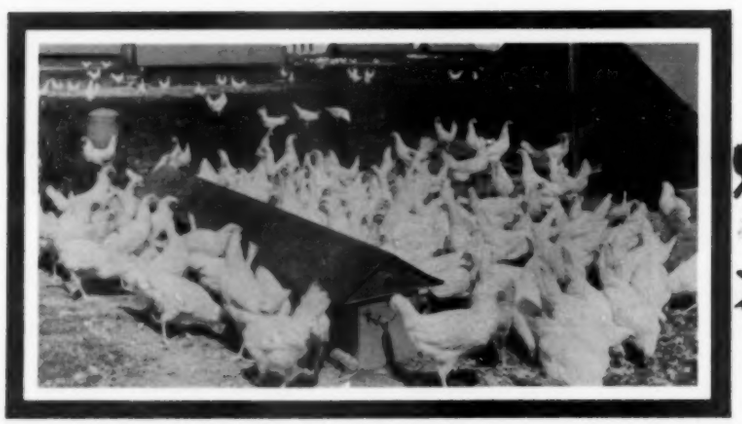
There are three different kinds of worms that cause most of the trouble in poultry—large roundworms, cecal worms and tapeworms. Experience has shown that worm damage can be reduced by sanitation and good management, but under typical field conditions it is impractical—if not impossible—to raise poultry without a considerable loss due to sickly birds, higher feed costs, reduced gains and lower production. Therefore, some worming treatment is necessary.

Unfortunately, no single drug is equally effective against all 3 kinds of worms. And even if there was such a medicant, few growers are skilled at posting and diagnosis, so that the kind of worms infecting birds might not be properly identified. Thus a grower might use the wrong worming compound—one that would work against a different kind of worm other than those in his birds. All this spells out the need for a broad-range wormer, one that gets all 3 kinds of worms. That's why growers prefer a multispecific wormer. And that's why Dr. Salsbury's Laboratories produced Wormal, the only wormer that gets all 3!

Other Advantages of Wormal Granules

1. Wormal is the only feed additive wormer that removes large roundworms, cecal worms and 6 species of poultry tapeworms.
2. Easy to handle. Wormal Granules are crumblized for easy mixing or may be added to feeds prior to pelleting.
3. Easy to feed. Wormal fits most feeding programs—all mash, or controlled mash and grain.
4. Wormal is safe.
5. Palatable. Feed mixtures containing Wormal are readily eaten by chickens and turkeys.
6. One standard dose for birds of all ages. One pound of Wormal treats 250 birds of any age. Mix at rate of 20 lbs. per ton of mash.

WORMAL . . . THE MOST EFFECTIVE WORMER for Chickens, Broilers, and Turkeys



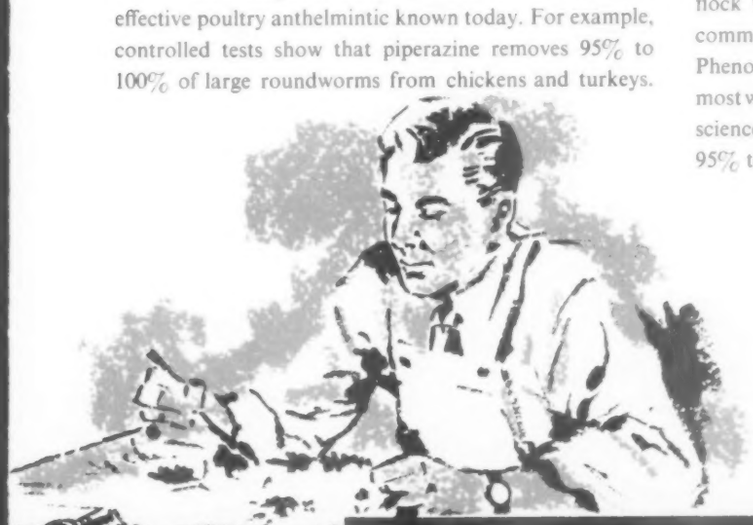
Commercial flocks *are usually raised on clean range, thus reducing the degree of infection. However, for best results sanitation should be supplemented by a regular worming program—Wormal at 8, 12, 16 and 20 weeks for maximum worm control.*

Removes all major types of poultry worms having economic importance

Only Wormal contains Piperazine, Dibutyltin Dilaurate and Phenothiazine

These three drugs combine to make the safest, most effective poultry anthelmintic known today. For example, controlled tests show that piperazine removes 95% to 100% of large roundworms from chickens and turkeys. It works fast, is palatable, and does not interfere with normal feed consumption.

Dibutyltin dilaurate, a development of Dr. Salsbury's Laboratories, is available only in Wormal. It is the only flock tapewormer that removes 90% or more of the 6 commonest species of chicken tapeworms—heads and all. Phenothiazine, the third drug in Wormal, is one of the most widely used worming compounds known to veterinary science. It is also one of the most effective—removing 95% to 100% of cecal worms from poultry.



UTILITY FLOCKS

usually show a much higher worm infection than commercial birds because not enough attention is paid to clean range and other good management practices. Thus a good worming program is needed. After pullets are housed, use Wormal every 30 days if necessary. Litter management can greatly reduce the number of worms. No matter what kind of material is used, litter should be managed so that it stays deep, loose and dry.

write, wire or phone

for the full story on Wormal. Complete information will be sent to you. Or, if you wish, a Dr. Salsbury technical service adviser will arrange to call and personally answer your questions about the use of Wormal Granules in your feeds.

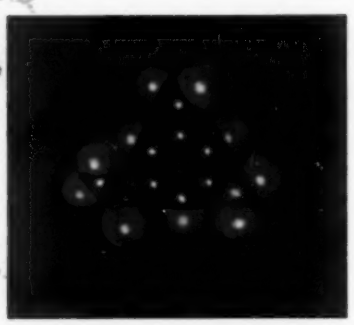
Growing . . .

WITH THE FEED INDUSTRY

The feed industry has grown tremendously in recent years. And that *growth will continue*, as an ever-increasing poultry and animal population clamors to be fed. Dr. Salsbury's Laboratories also has grown considerably. And we like to think that as we continue to grow with the feed industry, additional new milestones will be reached.

As we've worked hand-in-hand with the feed industry in the past, so, too, are our futures tied together. Future growth, like that of the past, will depend mutually on our being able to meet the needs of a changing agricultural economy in which fewer and fewer farmers will produce more and more food. As farmers and the feed industry adjust to these changing times, Dr. Salsbury's Laboratories will be ever ready to serve.

Briefly described on this page are some of the free services that are available to you through the world-wide facilities of Dr. Salsbury's Laboratories. Phone, write or wire for further information.



THESE FREE SERVICES ARE YOURS FOR THE ASKING

AUTHORITATIVE COUNSEL. Available to you is the counsel of more than a score of Dr. Salsbury's scientists in the fields of poultry and animal health, chemistry, microbiology, protozoology, and helminthology, working with the most modern equipment in one of the largest commercial poultry—and animal—health laboratories in the world. These experts are at your service for any advice you may need regarding feed medication.

PATHOLOGICAL SERVICE. Dr. Salsbury's Laboratories offer you the professional diagnostic opinion you may need for providing the proper medicated feeds to cope with unusual flock health problems.

TECHNICAL SERVICE ADVISERS. A group of trained specialists, experienced in feed medication, will come and confer with you. They bring the entire technical resources of Dr. Salsbury's Laboratories to your aid.

SERVICE TRAINING COURSE. Dr. Salsbury's Laboratories have over 25 year's experience in training dealers, field servicemen, and poultrymen in the essentials of poultry health. Short courses in poultry, broiler, and turkey subjects—taught by leading scientists and educators—can help your staff render a better service.

SCIENTIFIC INFORMATION SERVICE. An extensive series of Feed Manufacturers Guides, bulletins, and reports of research covering practically every field of poultry health, will be sent to you regularly.

FIELD SERVICE. One-fourth of Dr. Salsbury's total staff—or about 100 men—are constantly in the field, providing service. These men have an average of 12 years' experience with the Laboratories. They know poultry, and they are always ready to assist you with feed medication.

Dr. S

Feed Products Division

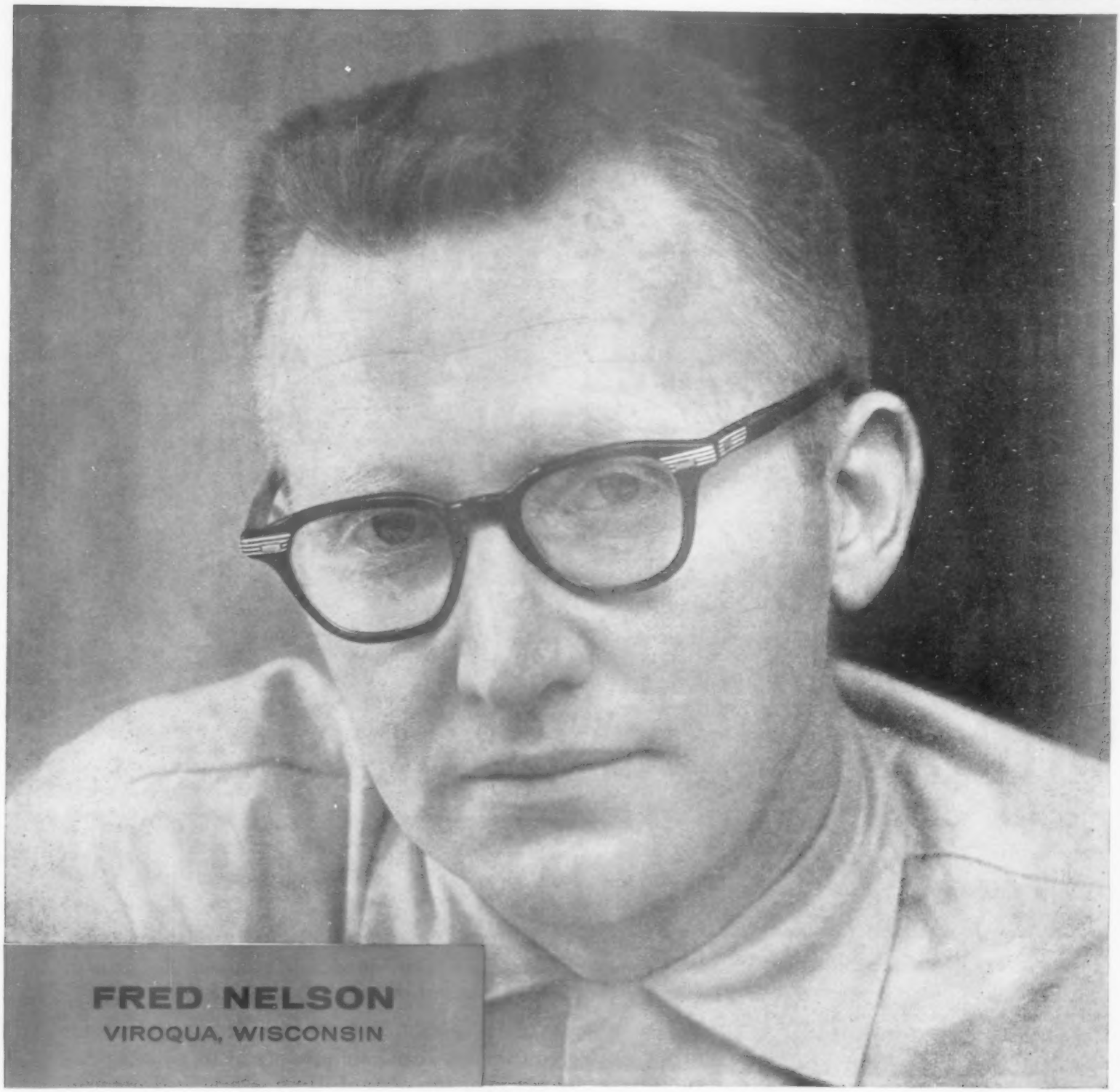
DR. SALSBURY'S LABORATORIES

Charles City, Iowa, U. S. A. Phone 200

NATIONWIDE SERVICE TO THE FEED INDUSTRY

Printed in U. S. A.

Form No. O6A14-58



"Nearly half of my salt sales are Trace-Mineralized"

"We have experienced a steady increase in Morton T-M Salt volume in the past two years," reports Mr. Nelson of Nelson Feed Mill & Elevator Company at Viroqua. From 45% to 50% of his total salt tonnage of 85 tons is now T-M Salt.

Mr. Nelson advises other dealers to expect further increases in *profitable* T-M business as more and more farmers switch from plain salt to T-M.

"It pays any dealer to sell his customers on using T-M instead of plain salt for livestock. We use trace-mineralized mixing salt in all our feed mixes and advocate the use of T-M Salt to all customers.

"It is my firm belief that farmers should feed trace-mineralized salt and from my experience I recommend Morton T-M. My customers can then be sure their animals get all the minerals so necessary for health and good feed conversion," states Mr. Nelson.

Sell more Morton T-M for extra profit. If you already handle Morton T-M Salt you can increase your business and your profit by following Mr. Nelson's example. If you don't handle Morton T-M Salt but would like to, just write to the Morton Salt Co., Chicago, Ill.

BACKED BY STRONG ADVERTISING

As a Morton dealer, your T-M sales effort is backed by consistent, down-to-earth advertising in leading farm and ranch publications. Radio sales messages also tell farmers and ranchers everywhere the benefits of using T-M Salt. Listen to the Alex Dreier radio show, "Topic for Today," every Saturday immediately following the "Farm and Home Hour."

MORTON T-M SALT

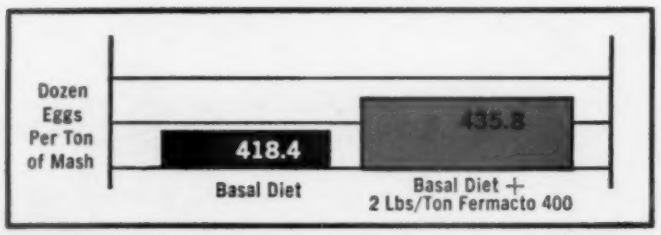
BY THE ONLY STANDARD THAT COUNTS... PROFITABLE EGG PRODUCTION... LAYING MASHES PERFORM BETTER WITH...

Borden's fermacto 400

A unique blend of multiple fermentation factors...only two pounds per ton, on an all-mash basis, provide complete unidentified growth factor fortification... at a cost of only about *twenty-five cents.*

Tests have shown that Fermacto 400, when added to egg mashes already considered complete, can help produce as many as seventeen dozen *extra* eggs per ton of feed. Here is practical proof of performance:

48-week test on Single-comb White Leghorns in laying house



OVER 17 DOZEN EXTRA PER TON OF MASH

Results of a number of practical feeding trials are available for review. Write Borden's, or ask your Borden field representative for these test data... to see just what Fermacto 400 can mean to *your* program.

THE *Borden* COMPANY
FEED SUPPLEMENTS DEPARTMENT
350 Madison Avenue • New York 17, New York

BETTER FEEDS THROUGH RESEARCH

Laboratories and test farms at Elgin, Illinois.

Borden's 300

...for more efficient, more economical egg production...without wasteful over-fortification...and, at a cost of only about $1.10 per ton.

All necessary vitamins and minerals have been blended with Fermacto 400 in one convenient, complete supplement for laying mashes. Write for details.

Central Association Announces Schedule Of District Meetings

MILWAUKEE—The Central Retail Feed Assn., Milwaukee, will bring its association out to the members in a week of district meetings Oct. 27-31.

Dates and sites for the five district meetings were announced recently by Eldon Roesler, executive secretary. They are as follows:

Oct. 27—Hotel Eau Claire, Eau Claire.

Oct. 28—Elks Club, Wausau.

Oct. 29—Beaumont Hotel, Green Bay.

Oct. 30—Elks Club, Janesville.

Oct. 31—Elks Club, Fond du Lac.

The meetings will all start with dinner at 6:30 p.m. Non-members are invited, and members are urged to bring their county agents and veterinarians.

Speakers for the meetings include Dr. A. L. Pope, animal husbandry department, University of Wisconsin; E. H. Sather, New Richmond, association president; Walter B. Griem, Madison, feed and fertilizer control chief for Wisconsin, and Mr. Roesler.

Dr. Pope will discuss shifts in animal production which should be considered by feed men, and Mr. Sather will talk on the subject, "The Road Ahead." Latest changes in feeds and a report on the meeting of control officials held in Washington will be discussed by Mr. Griem. Legislation upcoming in the next session of the state legislature and a discussion of a possible sales tax and its effects will be discussed by Mr. Roesler.

Steady Prices Seen For Feeder Lambs

EAST LANSING, MICH.—Feeder lamb prices are likely to hold steady through this trading season, according to John Ferris, agricultural economist at Michigan State University. He said the prices will probably hold a slight margin over a year ago.

Although this year's lamb crop was larger than last year and ahead of the 1947-50 average, greater numbers are not on the market because more ewe lambs are being held back for flock expansion, he said. Favorable lamb prices and the extension of the wool incentive program along with promising range feed conditions in the West should encourage continued withholding of ewe lambs during the coming year.

Slaughter of sheep and lambs between now and mid-1959 will depend on how rapidly breeding flocks are expanded, he said. He estimated that enough ewe lambs will be held back to offset the larger lamb crop.

The economist said he expects fat lamb prices for the coming winter to hold near last winter's levels when choice and prime wooled lambs averaged around $23 to $24.

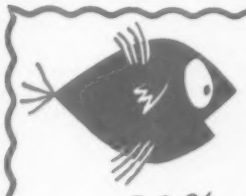
New Firm Announces Feed Supplement Line

WOODSIDE, CAL.—A new line of feed supplements has been developed here for various kinds of farm animals and will soon be offered for production on a franchised basis by the newly-formed Equifeed Corp.

Three products will be sold under the trade names of "Equivite," "Drive," and "Protevite" under a franchise arrangement with processing firms. The first is a vitamin and mineral supplement for horses, cattle, and zoo animals; the second a protein, vitamin and mineral supplement for horses only; and the third a protein, vitamin and mineral supplement for cattle.

The concentrate is a development produced by Dr. Thomas L. Schulte, a San Francisco surgeon, who has been searching for a high energy food concentrate first for use by polo horses.

Dr. Schulte is president of the new corporation; vice presidents are Philip H. Heersema, Palo Alto, and Dr. Melville Sahyun of the Sahyun Laboratories, chemical research firm, in Santa Barbara, Cal. Secretary-treasurer is Everett Mathews, an attorney.



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with Pratermatic Screen Changer For Granular Grind and unlimited conveying capacity in any direction.
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Used in the granular reduction of soybean, linseed and cotton seed meal, tankage and meat-scraps.
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Grinds toughest fibrous materials into specific sizes (for production use or blending with other materials).
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Produces the famous and exclusive Triple Reduction GRANULAR GRIND
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Used for processing grain in small feed stores and hatcheries.
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Designed to handle all dry materials, from a few pounds to continuous production; produces an even granular grind sized to desired degree of fineness.
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with fan on Rotor Shaft. The finest, lowest cost-per-ton grinding and sizing equipment. Large capacity for continuous production.
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Sales to Be Stressed At Joint Illinois Feed, Poultry Meeting

SPRINGFIELD, ILL.—"Good Human Relations Make Sales" is to be the theme of the joint annual Illinois Feed Assn.-Illinois Poultry Improvement Assn. meeting to be held Nov. 5-6 in the Springfield Armory.

The program was announced by Alvin Lovekamp, U&L Grain Co., New Berlin, Ill., feed association president.

The keynote address of the convention will be given by Dr. Millard G. Roberts, president of Parsons College, Fairfield, Iowa. He will discuss the subject, "America, Seedbed for Sales."

Another address covering sales will be given by Garland Benton, Southern States Grain Marketing Cooperative, Inc., Richmond, Va.

Four sessions of the two-day convention will be devoted to a sales training clinic conducted by Byron Lopp, Denver, authority on sales and human relations. The speaker for the eye-opener breakfast planned the second day of the convention will be O. Harvey Green, first vice president, American Poultry and Hatchery Federation, Spartanburg, S.C.

The group will be divided the second day as feed association members and poultry association members attend separate business sessions.

"Human Relations in Business" will be discussed by James H. Burrell, business management consultant, St. Louis, and Jerry Sotola, associate director, livestock bureau, Armour & Co., Chicago, will discuss the topic, "Research Will Point the Way."

Also planned is a special ladies program and an educational exhibit which already has over 85 spaces reserved.

Top Billing to Lamb Feeders at Iowa Event

AMES, IOWA—Sheep-feeding will be in the spotlight at the annual All-Iowa Sheep Day program at Iowa State College on Oct. 28, announced Emmit Haynes, Iowa State animal husbandman.

Iowans import as many as a million head of lambs a year from western states to feed out on Iowa grain, Mr. Haynes said. This is in addition to more than 600,000 lambs produced on Iowa farms.

The All-Iowa Sheep Day program is devoted in alternate years to lamb feeding. In the other years it is devoted to lamb production, he said. Since the two operations overlap, men in both the feeding and production fields are expected to attend, Mr. Haynes added.

The program will be held at Curtiss Hall on the Iowa State campus.

Dean Scholes

Amos O. Russell

ADM Equipment Sales Staff Adds 2 Men

MINNEAPOLIS — Expansion of the sales staff of Archer-Daniels-Midland Co.'s equipment department is announced by Richard G. Brierley, ADM vice president.

Dean Scholes has joined the department as a sales representative and Amos O. Russell as a sales drafting engineer. Both will headquarter at ADM's Kansas City offices.

Mr. Scholes formerly was vice president of Agri-Tech Co., Kansas City. Prior to that he was a sales representative for Strong-Scott Manufacturing Co., Minneapolis, and for Sprout, Waldron & Co., Inc., in the Denver area.

In addition to handling sales of equipment manufactured at ADM's Neodesha, Kansas, plant, Mr. Scholes will represent other manufacturers whose products the company merchandises in conjunction with the complete feed mills, storage and processing plants built by the equipment department.

Mr. Russell will assist in design and layout of these facilities. He formerly was in the engineering department of Columbian Steel Tank Co., where he designed feed mills and grain storage equipment. He is a former plant manager and assistant production manager for Cerophyl Laboratories, Lawrence, Kansas, and a former chief draftsman for the Farm Credit Administration in Washington.

ADM's relatively new equipment department, under the direction of Frank D. Allen, builds complete bulk storage plants and feed mills throughout the central West, the announcement said.

The newest feed mill produced by the equipment department has just begun operations at Bancroft, Neb., while others are under construction.

Grant Barrett Joins E. M. Peet Company

COUNCIL BLUFFS, IOWA — Grant Barrett has been named head nutritionist for the E. M. Peet Manufacturing Co., Council Bluffs, according to George Morse, president of the company.

A graduate of the University of Wisconsin, Mr. Barrett will supervise the formulation and manufacture of feeds, the evaluation of livestock and poultry production problems, and will be responsible for quality control.

He formerly was national feed ingredients sales manager for the Merchants Chemical Co., Omaha, and assistant farm line manager for the J. R. Watkins Co., Winona, Minn.

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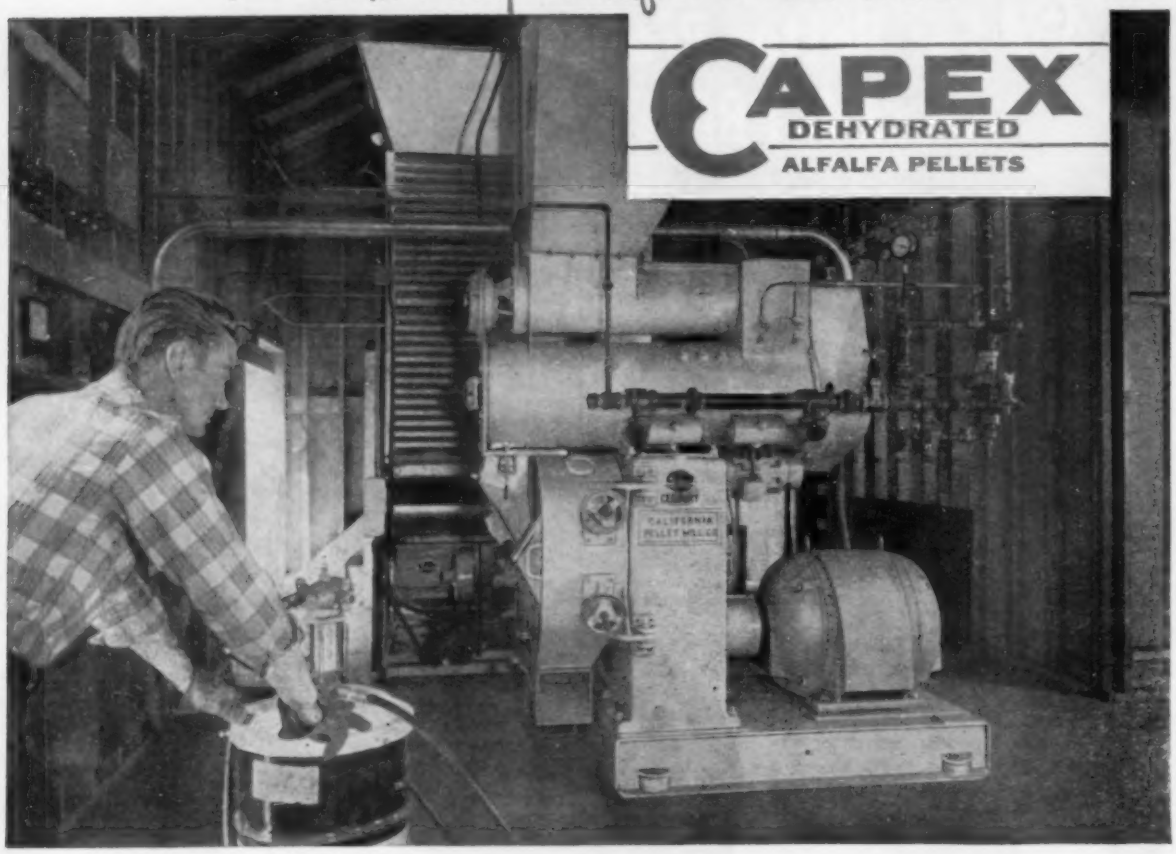

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To take full advantage of the fast-expanding market for pelleted feeds, it will pay you to follow the leaders who make CPM their first choice—and who repeat on CPM when additional units are needed.

Let CPM research, experience, and know-how as pioneers of pelleting equipment, help you select the *one* model that best fits your needs—one that will *continuously produce more pellets per horsepower at lowest cost per ton!* Write for full information or call your nearest CPM representative.

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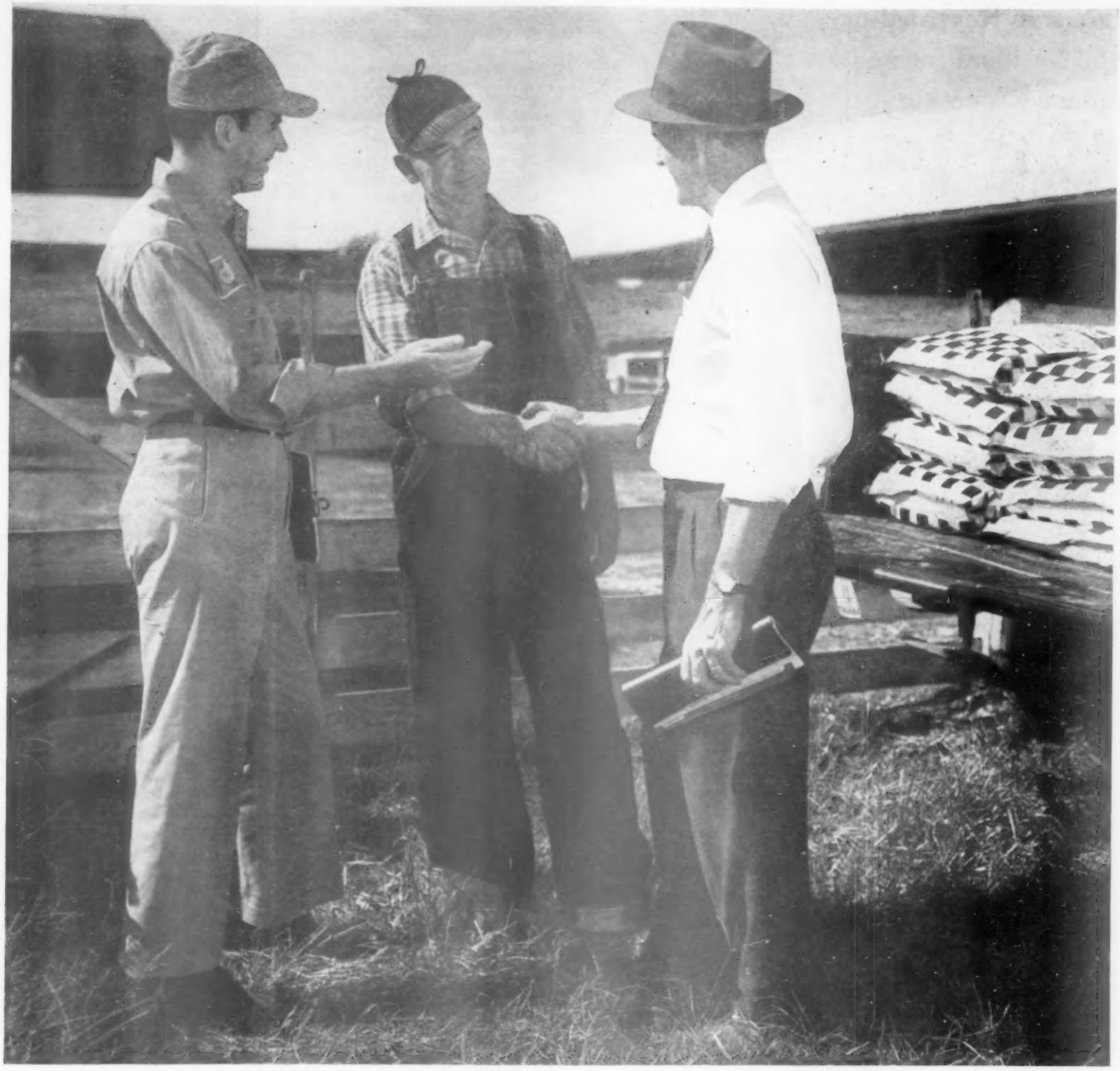


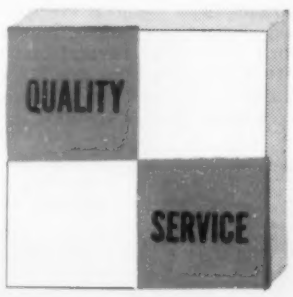
Why many feed dealers have larger figures in bankbooks

Numerous feed dealers in various parts of the country saw amazing changes when they accepted the Purina Franchise. Tonnage turned upward sharply. Figures in their bankbooks became larger and there was more profit at the end of the year. The reason is plain:

The Purina Franchise means more than the mere right to sell Purina Chows, Purina Health Aids and farm supplies. It means a business team, made up of the dealer *and* Purina, devoted to serving Animal Agriculture.

Purina helps the dealer with national advertising and promotion . . . with money management and inventory control . . . with hiring and training employees . . . with on-the-farm sales and service.

Such backing turned many average dealers into outstanding successes and identified Purina as "The Champion of the Independent Feed Dealer."



PURINA . . . YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

Program Revealed For National Swine Industry Meeting

LAFAYETTE, IND.—The program has been announced for the National Swine Industry Conference Nov. 3-4 at Memorial Union, Purdue University.

Keith Myers, executive secretary of the National Swine Growers Council and conference chairman, listed seven main speakers and a dinner speaker in addition to the keynote address to be delivered by Dr. Earl Butz, dean of agriculture at Purdue. The conference will open at 9 a.m. Nov. 3 with a general session on swine production.

Dr. J. C. Hillier, Oklahoma State University, will discuss breeding and reproduction; Dr. D. V. Catron, Iowa State College, will speak on nutrition; Dr. S. H. McNutt, University of Wisconsin, will discuss disease and other losses, and Prof. Harry Russell, University of Illinois, will discuss management systems in swine production.

Mr. Myers said these speakers and the speakers at the afternoon session on marketing will look at where the swine industry is and where it is going in the special fields assigned them. At the noon luncheon, Dr. Butz will look into the future of the industry and estimate its potential.

At the afternoon session on hog and pork marketing, Henry Eavy, president of the Super Market Institute, will discuss the consumer market for pork. John A. Jones, George A. Hormel & Co., Austin, Minn., will speak on merchandising pork products. Dr. Cliff Cox, Purdue University, will discuss the marketing of live hogs.

Speaker at the conference dinner will be Carl Neuman, manager of the National Livestock & Meat Board. His address will be on "The Plus Values of Pork."

Seven committees will meet for the first of two open workshop sessions beginning at 7 p.m. on Nov. 3. The seven committees will correspond to the subjects of the seven talks at the general sessions.

Mr. Myers said those attending the conference will be urged to attend the committee workshop sessions and take part in the discussions. The workshops are aimed at appraising their subjects to determine (1) the present situation; (2) the potentials, and (3) what is needed, especially in the fields of research and educational programs, to accomplish the potentials.

The committees will meet again at 8 a.m. Nov. 4 to continue their work, and will present a summary report to the concluding conference session at 10 a.m.

Orvel H. Cockrel

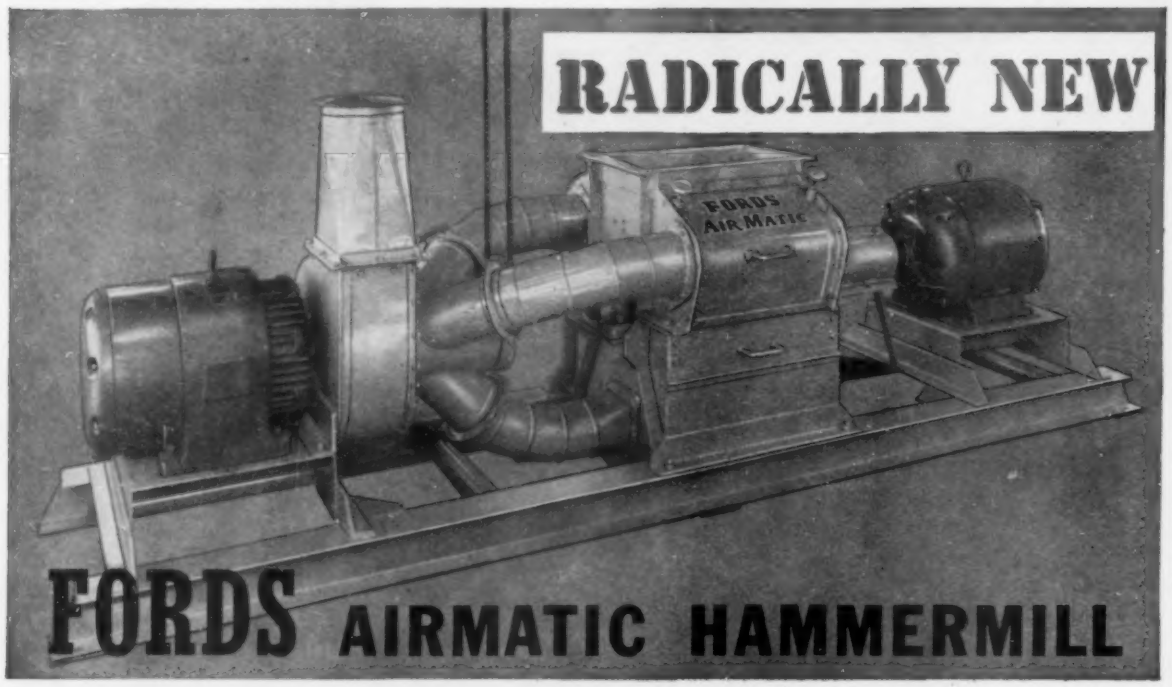
MARKETING RESEARCH — Orvel H. Cockrel has been appointed manager of the marketing research department of Hales & Hunter Co., Chicago. Before joining Hales & Hunter, Mr. Cockrel was manager of market research for the Watt Publishing Co., Mt. Morris, Ill., and before that was with the U.S. Department of Agriculture. He holds a B.S. degree in agriculture from the University of Kentucky.

Hay, Grain Processing Plant Starts Operations

ARTOIS, CAL.—A new grain and hay processing plant has been erected on the ranch of John Baker in Glenn County, near Artois, and has commenced operations as the Baker Brothers feed mill.

The $100,000 plant, which was completed this summer, has facilities for pelleting complete rations for beef and dairy cattle as well as lamb and sheep pellets. The formulas are laboratory controlled and farm proven, the Bakers said.

John Baker heads the new company. He has long been a ranch owner in the area. Kenneth R. Spiers, Willows, is the production manager in the bulk producing plant, and Jack Smart, owner of Smart's Feed Store, Maxwell, is handling the product in his area.



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The Airmatic's patented "Dial-The-Grind" control can be installed *anywhere* convenient. By remote control, you turn a dial to select any one of 3 screens. The selection of grind is controlled without stopping the mill . . . or the operator leaving the work floor. This revolutionary feature eliminates time wasting screen changes, and permits more flexible, economical mill operation!

Lets you dial the grind . . . a totally new concept in hammermill control and operation

With a simple twist of a dial, the revolutionary new FORDS Airmatic Hammermill changes grinds instantly by redirecting air through the selected screen . . . an entirely new approach to hammermill operation! Here, at last, is your solution to common mill problems. The new Airmatic eliminates:

1. Leaving the work floor to change screens.
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6. Push-pull rods, bell cranks, levers, clamps, etc.

The exclusive, patented **AIRMATIC MILL** provides instant screen change even while the mill is being fed! Open throat design permits grinding hay without pre-shredding. Independent fan drive provides maximum capacity and efficiency of operation. The new AIRMATIC is only 46" high for easy installation in plants with shallow pits or low ceilings. The simplicity of design of AIRMATIC provides a screen change mill without the complications normally associated with equipment of this kind.

For the newest, most modern feed mill equipment, automation engineered to your needs, write to: **2901 S. Illinois St.**

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Did you know you can tailor nf-180® layer feed to every egg producer's needs with these two plans?

There are two different approaches these days to the use of nf-180 in layer and breeder rations. Both work! And their flexibility lets you meet the needs of almost every situation.

Most poultry raisers agree that nf-180 *is* all it's cracked up to be . . . that it practically outdates all other poultry feed medications. But some flock owners champion one method of using nf-180 while an equally enthusiastic group prefers another way. Now you can satisfy both.

Quite a few poultrymen — especially the big commercial operators—prefer to feed a continuous low level of nf-180 to provide 25 grams furazolidone per ton of complete feed. They like the way it improves overall flock performance, stimulates egg production, and improves feed-egg ratios. This is the popular *Penny-a-Month* Low Level program.

Other egg producers are sold on nf-180 medicated feeds for periodic use to knock out disease and stress troubles. This is the *Week-a-Month Protective Feeding plan.* It is remarkably effective for fighting laying slumps, off-feed problems, disease outbreaks. An nf-180 booster feed (containing 100 grams of furazolidone per ton) is the ideal feed for this plan.

You'll have requests for information on nf-180 medicated feeds to fit both plans. So Hess & Clark has prepared two kits . . . one for each plan . . . which give the details you'll need to answer inquiries and set up specific programs for customers. Send for both the "Penny-a-Month" and "Week-a-Month" kits now, so you'll be fully armed with this versatile, flexible way to fill the feed and management needs of your poultry customers. The kits are free, of course.

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Explains Value of All-Mash Feed System

EAST LANSING, MICH. — "The only way that poultrymen can be assured that birds are receiving the proper balance of protein and energy is to use an all-mash feeding system," declared C. W. Pope of the Michigan State University poultry husbandry department recently at the annual Michigan Hatchery Conference at Kellogg Center.

"When hens are allowed to balance their diet by choosing between a mash and grain," Mr. Pope said, "they will consume less protein than is required for optimal efficiency and optimal production. This is to be expected, since chickens prefer grains to mash if the two are available.

"There has been a great deal of research recently comparing various feeding systems," declared Mr. Pope, "and results show that the all-mash system has been superior."

The all-mash system uses a feed which may be granular, pellet or in crumble form. The other two major feeding systems are modified cafeteria system and the feeding of commercial concentrate with whole grain, he said.

Mr. Pope explained that because cereal grains normally have poor distribution of amino acids, a hen will not produce sufficiently when the amount of mash and grain consumed is out of balance.

Scale Group Issues Dictionary of Terms

WASHINGTON—"Terms and definitions for the Weighing Industry," a dictionary of 1,170 terms peculiar to scales and weighing, is announced by the Scale Manufacturers Assn., Inc.

Prepared by the association's terminology committee, the new dictionary is published as an aid to industrial and business users of scales. The committee said that scale users, manufacturers, distributors and service people could better understand each other and save valuable time if the terms were better understood.

Distribution of the new dictionary will be through members of the association, except for a limited number which the association will supply on a single copy request basis for $1.

Persons desiring copies should contact scale manufacturers with whom they are acquainted or do business. Those unable to get a copy this way may purchase it for $1, postpaid, by writing to Scale Manufacturers Assn., Inc., One Thomas Circle, Washington 5.

Research Lab Opened

BAKERSFIELD, CAL.—Dr. James Bridges, nutrition and feed consultant, has opened his own research laboratory at Bakersfield. Prior to establishing his consulting service, Dr. Bridges was a research staff member at the Kern County Land Co.

Continental Plans New Orleans Elevator

KANSAS CITY—Michel Fribourg, president, Continental Grain Co., has announced an addition to the company's port facilities. Ground will be broken for a 3-million-bushel elevator at Westwego, La., in the near future. Mr. Fribourg stated that an agreement was signed with the board of commissioners of the Port of New Orleans in May of this year wherein Continental will erect the elevator, and the board will erect the dock. Plans are now reaching final formulation, permits are being issued, and construction contracts being let.

Mr. Fribourg hailed this addition to the facilities of the Port of New Orleans as a vote of confidence in the agricultural progress of the Mississippi Valley and of the continued expansion in the exports of grain and grain products through New Orleans.

The elevator will consist of about 1,250,000 bu. of conventional concrete storage with the balance consisting of large steel tanks.

The addition at New Orleans will bring Continental's total grain storage capacity to about 80 million bushels.

Linear Programming Explained in New Book

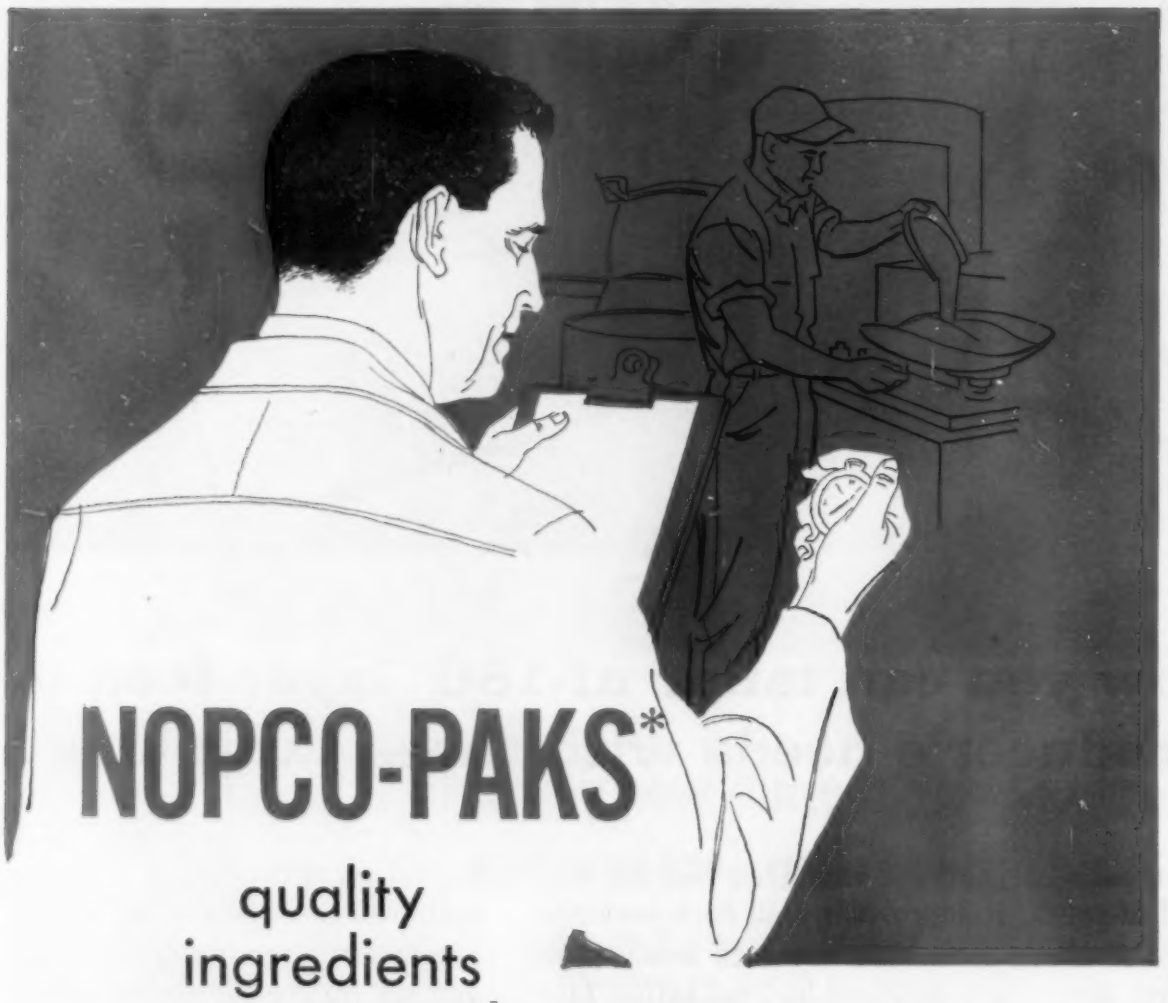
AMES, IOWA—An explanation of "linear programming" and how it can be applied to business and farm operations is included in a book written by Earl O. Heady and W. C. Candler and published by the Iowa State College Press.

Entitled "Linear Programming Methods," the book cites how linear programming can be used in a wide variety of problem situations and by many kinds of business enterprises.

Mr. Heady is a professor of agricultural economics at Iowa State, and Mr. Candler is lecturer in agricultural economics at the University of New England, Armidale, Australia.

PACIFIC NORTHWEST ELEVATOR

BURBANK, WASH. — The new grain elevators of River Grain Terminals, Inc., here began operations recently although only 95% completed. The $500,000 terminal is being constructed by the Port of Walla Walla and is leased to the operating firm. It is designed to handle grain from the three northwest states and has a capacity of 800,000 bu. making it one of the largest on the Columbia-Snake River System.



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Nopco-Paks are formulated to give you feed efficiency and blended under the supervision of qualified nutritionists. The mixing operation that has been set up virtually eliminates any chance of human error. The equipment used is of a design and capacity to assure a product of uniformly high quality. Even the length of time that ingredients stay in the mixes is carefully determined so that each batch-sized bag will be an evenly blended premix. These precautions are essential to the production of Nopco-Paks that will provide full potency and assure excellent feed performance.

Blending of Nopco-Paks is done by experts. Why not use Nopco's specially designed facilities to obtain accurate, uniform premixes that deliver the potency you need. Talk to your Nopco representative about your own specially blended Nopco-Pak or write us direct.

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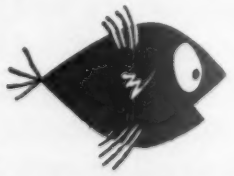
Food Without a Hook?



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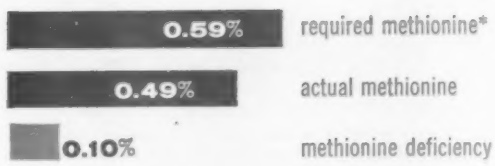
For top feed efficiency be sure your formulations contain sufficient Hydan trademark

STARTER RATION

Corn	45.0%
Soybean oil meal	45.0%
Fish meal	5.0%
Misc.	5.0%

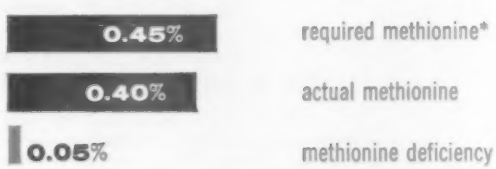


Starter rations need sufficient added Methionine for top feed efficiency

Starter diets containing 30% protein are capable of supporting at least 900 calories of productive energy/lb. However, the combination shown at the left contains only 0.49% methionine, whereas the requirement is 0.59%. The deficiency of 0.10% can be economically corrected by the addition of "Hydan" at the rate of 2 lbs. per ton. Rapid early growth during this critical period requires a completely balanced protein.

GROWER RATION

Corn	61.5%
Soybean oil meal	29.7%
Fish meal	3.8%
Misc.	5.0%

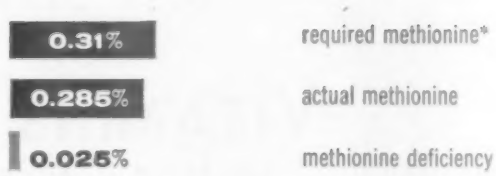


Grower rations need sufficient added Methionine for top feed efficiency

Grower diets of approximately 23% protein will properly balance with energy content in the range of 920 to 1000 cal./lb. depending on stage of growth. The ingredient combination at the left is deficient in methionine by 0.05%—1 lb./ton. The use of "Hydan" to supplement feeds in this important growing period assures maximum rate of growth with high-efficiency diets.

FINISHER RATION

Corn	78.0%
Soybean oil meal	14.5%
Fish meal	2.5%
Misc.	5.0%



Finisher rations need sufficient added Methionine for top feed efficiency

Finisher diets containing a well-balanced protein can be formulated to a calorie/protein ratio of as high as 65/1. The 16% protein mixture shown at the left is only slightly deficient in methionine. For improved utilization of energy content during this period of heavy feed consumption, such mixtures should be supplemented with "Hydan" at the rate of ½ lb./ton.

*Based on a requirement of approximately 2% of protein.

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WHITMOYER POULTRY SCHOOL—The fall session of the Whitmoyer Poultry Health & Nutrition school was held recently at Whitmoyer Laboratories, Inc., headquarters in Myerstown, Pa. Members of the class were feed men, hatchery men and others associated with the poultry industry. Students represented eight states and Canada. Members of the class are pictured here.

Front row (left to right)—John Gogets, Fredericksburg, Pa.; Lyle R. McClenning, Indian Head Hatchery, Farmingdale, N.J.; Kenneth E. Roberts, Dietrich & Gambrill, Inc., Queenstown Md.; Robert L. May, Strain Poultry Farms, Inc., Dalton, Ga.; Donald I. Rosenkranz, Monmouth Co. Feed & Coal Co., Elberon Park, N.J.; William E. Bolton, Verity Mills, Inc., Lockport, N.Y.; J. Benjamin Brubaker, S. H. Hiestand & Co., Landisville, Pa.; Martin C. Himes, Mahoning Farm Bureau, Punxsutawney, Pa.; Scott L. Kendall, American Mill Service Co., Minneapolis; Chester Russell, Franklin Farm Bureau, Fayetteville, Pa. Second row (left to right)—David S. Yoder, Longenecker's Hatchery, Mt. Joy, Pa.; James V. Hruska, Pennsylvania State University, University Park, Pa.; Ivan M. Marshall, Brockville Cooperative, Bellamy, Ontario, Canada; Clement Smith, Ottawa District Farmers Cooperative, Ottawa, Ontario, Canada; Nelson C. Mount, S. R. Mills Feed Co., Hightstown, N.J.; Robert E. Gregory, Miller & Bushong, Inc., Wernersville, Pa.; Gerald Hempleman, John W. Eshelman & Sons, Lancaster, Pa.; Kenneth A. Knoblich, Mount Hope poultry department, Williamstown, Mass.; Claude Ebersole, Palmyra Feed & Grain, Lebanon, Pa.; Brian Coyne, United Coop. of Ontario, Kemptville, Ontario, Canada; Leo Martin, Gordon Gates Poultry, Port Williams, Nova Scotia; Anthony E. Schmittinger, Maritime Milling Co., Monocacy Station, Pa.; third row (left to right)—M. Ernest Underwood, DeKalb Chicks, Bloomsburg, Pa.; Robert L. Zimmers, Zimmers Feed Mill, Boyertown, Pa.; Marion Helmuth, John W. Eshelman & Sons, Navarre, Ohio; Dale W. Cook, Wayne Feed Supply Co., Inc., Dillsburg, Pa.; James Hilliard, Colonial Poultry Farms, Inc., Ocean City, N.J.; Doyle T. Hart, Northeast Georgia Broiler, Royston, Ga.; George E. Knott, Big Juniata Roller Mills, Alexandria, Pa.; Ronald Myers, DeKalb Agricultural Assn., York, Pa.; C. Eugene Gillette, Linesville Chicks, Linesville, Pa.; William H. Moul, D. H. Sharrer & Sons, Hampton, Pa.; Phares Auker, Longenecker's Hatchery, Elizabethtown, Pa.

Results of Maine Contract Broiler Study Reported

ORONO, MAINE—In order to get an objective picture of the economic and social implications of the broiler industry in Maine, the Agricultural Experiment Station here made an extensive study during the summer of 1957 of a random sample of 245 contract broiler growers or about one fourth of all contract operators in the state.

Louis A. Ploch, an associate rural sociologist at the station, says Maine contract broiler growers are:

1. Younger, compared with the average Maine farmer.
2. About equal in education to the regular farmers (which was a majority having less than 11 years of formal education).
3. Almost all American born.
4. For the most part, full-time operators (meaning less than 100 days were spent in off-farm work).
5. Primarily broiler growers (and not combination farmers like broiler operators-dairy operators, etc.).
6. Farm-born in most instances.
7. Operators of family farms.
8. Nearly all in the high or medium level-of-living bracket.

Mr. Ploch felt that an important factor in the success of an individual broiler operator was in the opinions and attitudes he holds relevant to his position and how he thinks other persons evaluate him.

Some of the opinions and attitudes held by the broiler operator follow:

When asked "Do you consider yourself an independent operator or an employee of the processor?", 46% said they felt independent and 47% felt they were in the employee category.

When asked "Do you feel the processor gained more from the contract system than the public or the grower?", about one half of each group said yes.

When asked to rate their processors, 62% said they were "very good" to deal with and only 4% said they were less than good to deal with.

About 87% felt they would rather work for themselves than for someone else but at the same time 87% also felt they had more than enough to say in the day-to-day management of the birds.

Eighteen percent said they would like to be free to make all decisions concerning their birds, and 61% said they would like the opportunity to select the breed and strain of the bird which they raise. About 37% felt it was the processor's responsibility to do the selecting.

Mr. Ploch said because of the important growth of the broiler industry in Maine—just a handful in 1945 and more than 1,000 in 1955—a survey was necessary due to the many misconceptions about the industry. More work is being done in the broiler research field, he said, and future publications will expand on the interrelationships of the facts already found out.

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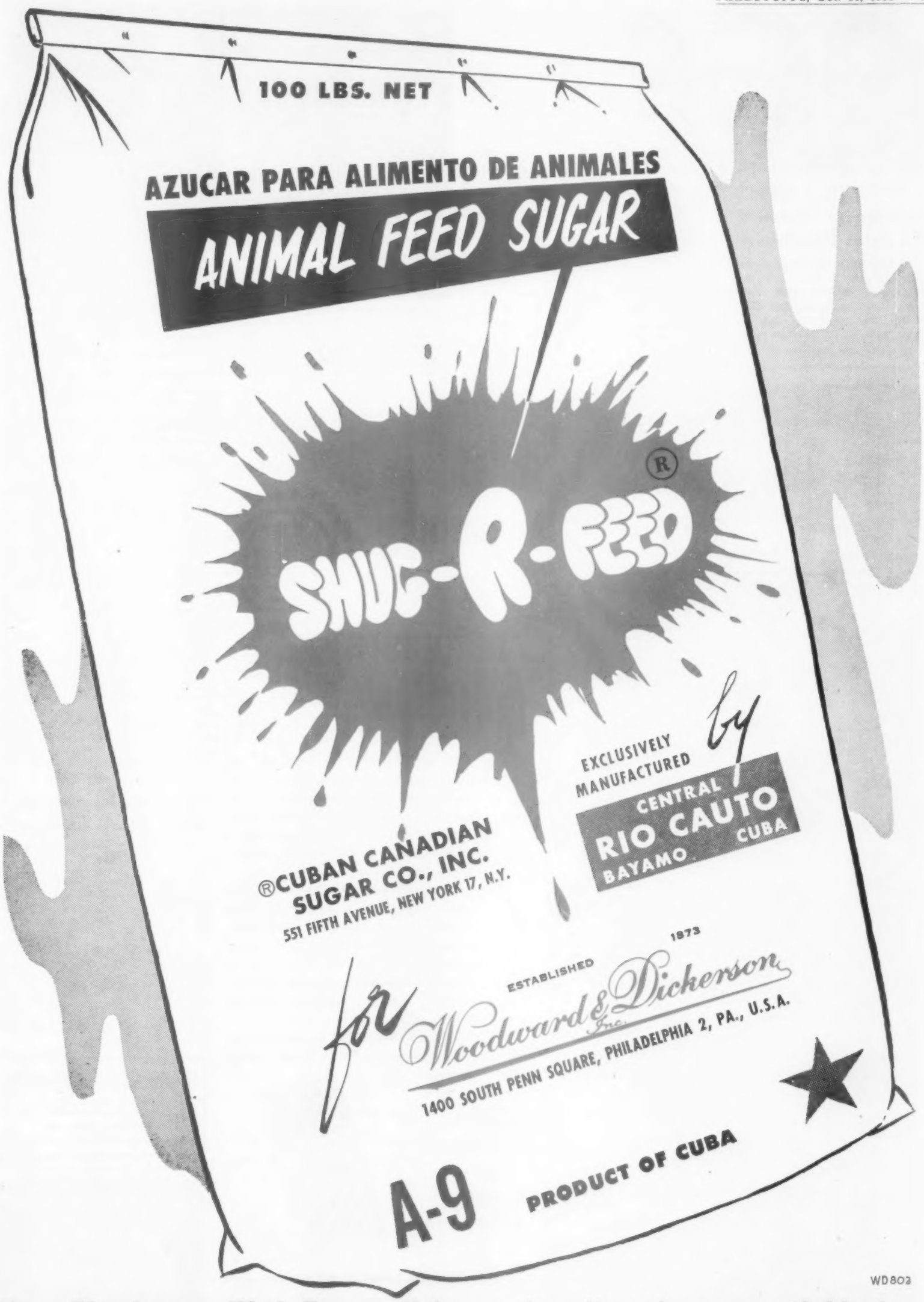
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Honeggers' Names 9 To Sales Positions

FAIRBURY, ILL. — Nine recent appointments in the sales staff of Honeggers' & Co., Inc., Fairbury, have been announced by Elmer S. Roth, vice president and general sales manager of the firm.

Named were Burdette C. Schweitzer, W. M. Donald, Dan Ernst, John A. Forsberg, Lawrence J. Nordhues, Robert J. Stauber, Jr., Robert M. Stauber, Sr., Bob Gordon and Byron C. Redd.

Named district sales managers were Mr. Schweitzer in the Sibley, Iowa, district; Mr. Donald in the Waterloo, Iowa, district; Mr. Gordon in the Freeport, Ill., district; Mr. Forsberg in the Norfolk, Neb., district, and Mr. Nordhues in the Lexington, Neb., district.

Mr. Ernst is a newly-appointed district manager for the Hannibal, Mo., district.

Farm building sales in the Lincoln, Neb., district will be supervised by Mr. Stauber, Jr. Mr. Stauber, Sr., is farm building representative for the York, Neb., area, and Mr. Redd the Harrisonburg and Centralia, Ill., area as building division sales representative.

Egg Marketing Plans Rejected in Canada

OTTAWA, CANADA — Two egg marketing plans offered for approval in the provinces of Alberta and Saskatchewan have been rejected following recent balloting.

In Saskatchewan, where the marketing plan actually was endorsed by 65.1% of the voting producers, Premier T. C. Douglas stated that his government does not propose to authorize the marketing plan because of a very light turnout of voters.

Less than one third of the eligible voters cast ballots on the plan, which required a 65% majority of those voting. The Saskatchewan government said that interest was not sufficient to indicate that producers wanted a marketing plan.

The same indifference of voters resulted in the defeat of the plan under consideration in Alberta. In Alberta, a 51% "yes" vote of all eligible producers was required to bring the program into effect. Out of 26,410 eligible producers, only 15,301 cast ballots, and 10,728 of these favored the plan. Despite the majority of yes votes by those voting, the total yes votes were short of the 51% of total eligible producers required.

W. J. Harper, chairman of the Alberta egg marketing committee, commented after the balloting that the 11,000 non-voters were mainly not commercial producers, and as such were not vitally interested. He said further that active poultrymen were obviously in favor of the idea.

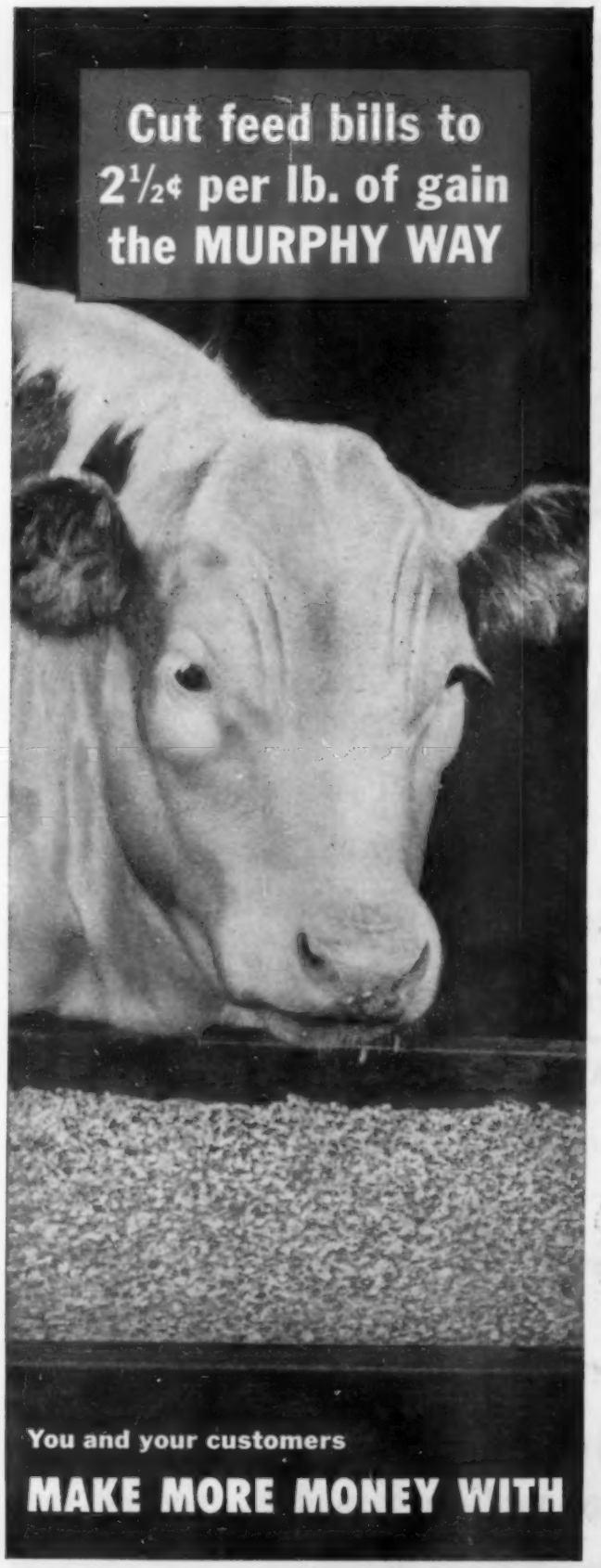
Bob Hill | Dick Anderson

JOIN ROLFES—Two new sales engineers have been added to the sales staff of Rolfes Grain Aeration Cos., Boone, Iowa, which now totals 16 men from coast to coast. Dick Anderson, a University of Washington graduate and experienced grain equipment salesman, has taken over the western Kansas area. Bob Hill, a sales engineer with 12 years of experience in crop drying, aeration and fan selection, has the North and South Dakota area.

Canadian Shipments Show Sharp Increase

WINNIPEG — Shipments of primary or concentrated feeds in Canada during July increased to 34,055 tons from 25,486 a year earlier, and secondary or complete feeds to 212,587 tons from 167,233, but all "other" animal feeds declined to 43,645 tons from 44,603 in July, 1957.

The cumulative total to the end of July showed that shipments of primary feeds had climbed to 240,448 tons from 206,735 a year ago and secondary feeds to 1,374,417 tons from 1,199,954. All "other" animal feeds increased to 298,071 tons from 292,587 tons last year.



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STAMPER YOUTH AUCTION—These are scenes from the F. M. Stamper Co. youth auction held recently at Moberly, Mo. Boys and girls were bidders for calves, gilts and production-type pullets purchased by the firm. Used in the bidding were stamps from the firm's feed bags. In the picture at left, Howard A. Stamper, president of the sponsoring company, is shown presenting the grand championship trophy to Terrill C. Johnson, Green City, Mo., who won the calf in a calf scramble in 1957 and then showed it this year at the show held as part of the auction. In the picture at right, Bob Wilkerson, Paris, Mo., is shown with a heifer calf purchased with stamps saved by 50 families in a community effort to assure a deserving young person of one of the animals.

Stamper Youth Auction Provides 55 Animals For 4-H, FFA Youth

MOBERLY, MO. — Stamps from feed bags of the F. M. Stamper Co., Moberly, bought 1,000 pullet chicks, 25 calves from registered herds and 30 registered gilts for farm youth attending the company's annual youth auction here recently.

Each bag of feed sold by the firm carries a stamp with a bidding value of 10 points, and any farm boy or girl between the ages of nine and 20 in an area served by a Stamper dealer can save and use the stamps to bid on the animals offered.

The auction is an all-day affair for the youth, their parents, club leaders and teachers. Registration of bidders is followed by a livestock and poultry show in which purchasers from the year before compete for $350 in prizes and five trophies. Everyone attending is a guest of the mill for a banquet dinner. Approximately 2,000 persons were served this year.

Calves and gilts used in the auction are purchased from top breeding, and the chicks are production-type pullets, buyer's choice of breed, from four Missouri hatcheries. Stamps are collected by the boys and girls and used in individual buying, or in a club or community effort with everyone saving stamps for a selected bidder. The top bid of the day was 118,500 points paid for a Hereford steer calf.

The closing event of the day is a calf scramble in which 25 boys representing that number of participating 4-H clubs and FFA classes compete for 10 additional calves. Calves go to the boys who halter them. Clubs and classes participating in the scramble are selected on the basis of attendance and number of stamps registered.

Boys and girls in the auction buy the animals and pullets for club or school projects during the coming year.

Organization Planned For Ohio Egg Industry

COLUMBUS, OHIO — Steps have been taken to create a new organization to serve Ohio's $67 million-a-year egg business. At the recent Ohio Poultry Industry Conference authorization was made for naming a 20-man committte of egg producers and handlers to draft plans for the organization.

The action followed creation of a national egg board at the July convention in Cleveland of the American Poultry & Hatcherymen's Federation. The Ohio group would be one of the first state affiliates to be organized.

Bruce R. Davisson, executive secretary of the Ohio Poultry Improvement Assn., said the commodity organization could inform and promote an industry which rates fourth in Ohio farm income, but which has no separate group of its own.

New association officers are Wayne Alleshouse, Norwalk, president, and Dr. R. George Jaap, department of poultry science at Ohio State University, secretary.

Dr. Earl L. Butz, dean of agriculture at Purdue University and former assistant secretary of agriculture, advised the poultrymen to accept vertical integration in farming as an inevitable result of a revolution in agriculture.

"Don't resist change but give it intelligent direction," Dr. Butz advised. "Political leaders will resist integration, but all the power of government won't stop it. Economics will win in the end."

Foreign Meat Imports Show Sharp Increase

SAN FRANCISCO — Prices paid for beef for processing have been pushed unusually high by reduced domestic slaughter of cows, and have encouraged foreign livestock producers to increase their export of manufacturing meat to the U.S.

Dr. A. G. Boyd, assistant state director of agriculture, made that statement to the state board of agriculture recently, adding that imports of meat into the U.S. so far in 1958 have considerably exceeded those for the same period last year. Imports of boned manufacturing beef have climbed sharply this year, Dr. Boyd informed the board.

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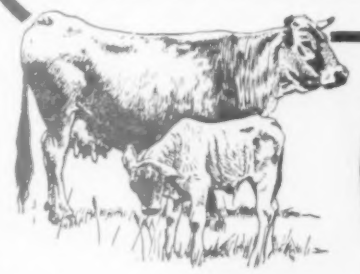

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Cargill Subsidiary Plans Elevator on St. Lawrence Seaway

QUEBEC CITY, QUE.—Construction "immediately" of a large grain elevator on the north shore of the St. Lawrence River, to coordinate Canadian-U.S. grain export with world shipping of aluminium, alumina, iron ore, newsprint and other products, has been announced here by Maurice Duplessis, prime minister of the province of Quebec.

Mr. Duplessis said Cargill Grain Co., Ltd., of Winnipeg, Man., will erect the 10 to 15 million bushel installation at Baie Comeau, Quebec. Completion is planned to coincide with the opening of the St. Lawrence Seaway next year. The elevator will enable midwestern U.S. grain and Canadian prairie province grain to be stockpiled at the Atlantic and will permit export even during winter months when the seaway will be closed by ice.

SEAWAY GRAIN ELEVATOR—The 10 to 15 million bushel export elevator to be built by Cargill Grain Co., Ltd., at Baie Comeau, Quebec, is shown in this artist's conception. The giant structure, which will receive grain from the Canadian and U.S. Great Plains, includes silo-type storage bins of conventional design, circular steel tanks for semi-"big bin" storage and, integrated with the silo bins to form a single large unit, a number of gable-roofed "big bins." An unloading dock will handle the largest vessels usable in the seaway, and a loading dock will load two ocean vessels simultaneously. The four steel tanks in right foreground are for fueling vessels.

The Canadian firm's plans call for expanding the facility to become "one of the important grain storage and shipping units in the world," Mr. Duplessis said. He estimated initial costs to be in excess of $5 million. "This massive private investment," he said, "is potent testimony of the Cargill management's confidence in the development of the lower St. Lawrence area of the province of Quebec."

At least 60% of the elevator's capacity will be reserved for Canadian grain, the announcement said. Lower costs for grain export and over-all efficiency of ocean and lake shipping will be achieved by a four-way coordination of:

Lake vessels and barges arriving with grain from interior ports, both Canadian and U.S., on the Great Lakes.

The same vessels and barges departing with newsprint, pulp products and aluminium ingots manufactured in Quebec to supply interior North American markets—also departing nearby Sept Iles, Que., with iron ore for Great Lakes smelters.

Ocean vessels arriving with alumina (refined bauxite) from Europe, the Caribbean, Africa and elsewhere to be converted to aluminium at the newly completed Canadian British Aluminium plant at Baie Comeau.

The same ocean vessels departing with grain for nations of Northern Europe, the Mediterranean and the Middle East.

The Baie Comeau facility will be a licensed public elevator, but most of the U.S. grain handled is expected to come from Cargill, Inc., Minneapolis, 93 year old parent company of the Winnipeg firm.

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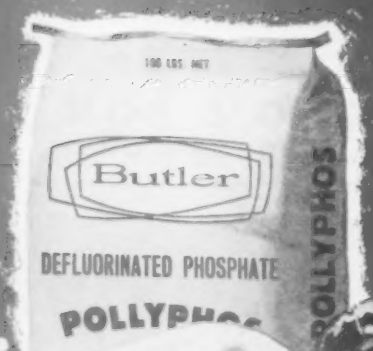

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Crossbred Pen Wins Storrs Laying Test at Connecticut University

STORRS, CONN.—A pen of 13 hens, a cross between the Barred Plymouth Rock and the Rhode Island Red strains, recorded the highest production in the annual Storrs Egg Laying Test completed recently at the Storrs Agricultural Experiment Station, University of Connecticut.

The winning pen, owned by J. J. Warren, North Brookfield, Mass., laid an average of 279 eggs per hen during the 50 weeks of the test just completed.

Results were announced by Francis A. Ryan, University of Connecticut poultry scientist, who supervised the test.

The test was one of five standard egg laying tests conducted in the East and Midwest this year. Final results are determined on points, which means that credit is given for egg size as well as total production. Mr. Warren's winning pen had a total of 3,842 points.

High hen in the test was a Rhode Island Red owned by Harco Orchard & Poultry Farms, Inc., South Easton, Mass. She laid 337 eggs, scoring 362 points in 350 days. The Harco pen of Rhode Island Reds was second with an average lay of 275 eggs per bird.

Hubbard Farms of Walpole, N.H., entered the third high pen, a group of crossbreds. The crossbreds laid an average of 268 eggs each.

Warren's top entry marked the third time that the North Brookfield farm had won the test. Warren's Rhode Island Reds turned in top production totals in 1948-49 and 1952-53. The Warren entry has always placed high in the Storrs test, Prof. Ryan said.

"Breeders enter their hens in the test to evaluate the hens' laying quality under New England conditions," according to Prof. Ryan.

STORRS LAYING TEST WINNERS—This pen of crossbred Barred Plymouth Rock and Rhode Island Red strains was the winner in the Storrs Egg Laying Test completed recently at the Storrs Agricultural Experiment Station, University of Connecticut. The 13 hens, owned by J. J. Warren, North Brookfield, Mass., laid an average of 279 eggs during the 350 days of the test.

Iowa Seed Dealers to Hold Annual Meeting

DES MOINES—The program for the annual convention of the Iowa Seed Dealers Assn. Oct. 23-24, Hotel Fort Des Moines, has been announced by the program committee, according to Robert Skinner, association secretary-treasurer.

He said one of the highlights of the convention will be a tour the morning of Oct. 23 of the chemical laboratory of the Iowa State Department of Agriculture.

The program on the afternoon of Oct. 23 and the morning of Oct. 24 will include panel discussions of "Lawn Grass Seed Problems" and "Drying and Storing of Grain Sorghum and Corn." Other topics having to do with seeds and forages will be taken up.

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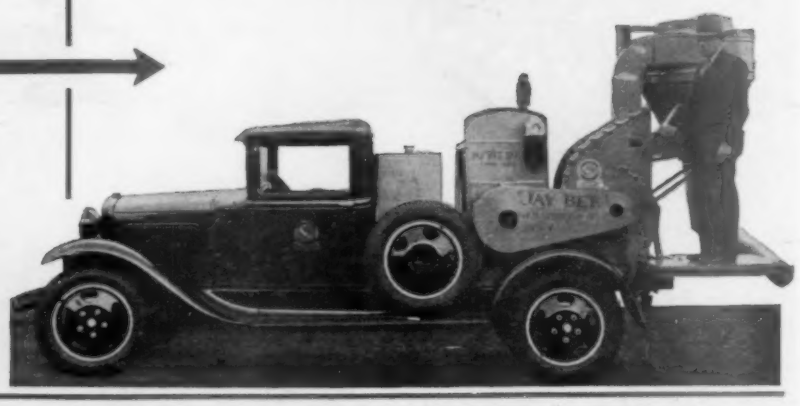

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Lilly **REPORT TO THE FEED INDUSTRY**

Union Stock Yards interview with two "first time" Stilbosol® feeders

"Wanted to start right," says Clarence Youngren of Harcourt, Iowa. "Neighbors convinced me," Donald Wright of Sugar Grove, Illinois, reports.

by Eugene S. Hahnel

Question: "I understand, Mr. Youngren, that this is the first pen of cattle you've ever fed Stilbosol-fortified supplement. Is that correct?"

Mr. Youngren: "Well, it's not just the first time I've fed supplement with Stilbosol. It's also the first cattle I've ever fed."

Question: "What made you decide to feed stilbestrol supplement to your first bunch of cattle?"

Mr. Youngren: "I figured I'd better start right. My neighbors feed Stilbosol supplements. In fact, they're pretty generally used in our area."

Question: "You decided to follow your neighbors' lead?"

Mr. Youngren: "That's a good part of it. But, I also read about the tests that showed stilbestrol in supplements saved feed and increased the gain. With feeder stuff so high, I wanted to do everything I could to widen my feeding margin."

Question: "How did you come out at the stockyards?"

Mr. Youngren: "I was quite well satisfied. I estimated my cattle at 1050 to 1075 pounds. The scales put them at 1110 pounds. They brought $27.50, which was three dollars from the day's top. I don't think that was bad for a 'first time' feeder."

"I figured I'd better start right."

Question: "How long have you been feeding cattle, Mr. Wright . . . and how many did you feed this year?"

Mr. Wright: "I've fed cattle 14 years . . . 330 head this year."

Question: "But, this is your first year to feed a Stilbosol-fortified supplement to your cattle, Mr. Wright?"

Mr. Wright: "Yes. There were two things that made me give it a try, I'd say. They were both important."

Question: "What were they?"

Mr. Wright: "My neighbors' results and comments just about had me convinced. Then, I had some yearlings which weren't gaining too well. I put them on Stilbosol supplement and they picked right up in gain. I know now that what your ads say is true. You get more gain on less feed, and it really can be the difference between profit or loss."

"More gain on less feed"

Question: "How did your stilbestrol cattle do at market?"

Mr. Wright: "Real good. The first bunch of steers brought $31.50 per hundred. The second bunch brought $31.00 a week later. These heifers just sold for $27.50. The same buyer took my first two bunches, so I'm sure he was well pleased the first time."

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Pillsbury Feeds

UP OR DOWN?

By Leonard W. Schruben
Agricultural Economist, Kansas State College

Oilseed Meal Situation

A knowledge of longtime trends often can help you reach a management decision. At this season of the year, feed manufacturers are faced with decisions regarding the situation with respect to high-protein feed supplements. For this issue we have prepared information to help give a picture of the present situation.

Upward Trend in Production

The trend of production of high-protein feeds has been decidedly upward since the mid-1930's as is shown on the accompanying chart. Exhibit 1 shows the high-protein feed supply in the U.S. for the years beginning Oct. 1, 1926, and ending Oct. 1, 1958. The feed supply is figured on the basis of soybean meal equivalent.

The major portion of the expansion, as is shown in Exhibit 1, has come through increased oilseed meal production. And, oilseed meal increases have come in recent years, primarily through the increase in soybean meal. In recent years the high-protein supply has reached about 12.5 million tons per year whereas 25 years ago the supply was nearly 4 to 4½ million tons a year, soybean meal equivalent.

This increased use of high-protein feeds in livestock production has come about through several forces. One is the growth of the manufactured feed business, and the other is the reflection of increased application of new technology to livestock production.

It is interesting to note the phenomenal growth in the use of high-protein feeds. The feed industry can take pride in the part it has played in bringing to farmers improved livestock feeds which in part depend on balanced supplements.

Oilseed Production Up

Exhibit 2 indicates the changing production of four oilseeds used in the production of meal for livestock. You will notice that in each category the indicated production as of Sept. 1 exceeded that of last year by a substantial margin. Most spectacular is the increase in soybean production. Flaxseed, cottonseed and peanuts also will contribute to the increased availability of supplies of oilseed meals during the coming year.

In the case of soybeans, another

EXHIBIT 1. High-protein feed supply (soybean meal equivalent), U.S., 1926 to date, MIL. TONS

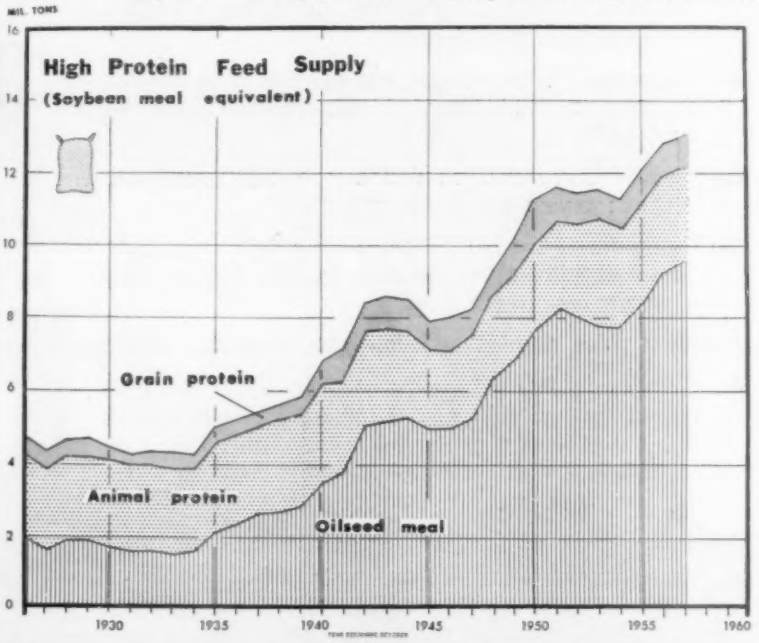

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EXHIBIT 2. Oilseeds Production, U.S., 1955-58.

Year	Soybeans for beans (million bu.)	Flaxseed (million bu.)	Cottonseed (thousand tons)	Peanuts (million lb.)
1955	374	41	6,043	1,576
1956	449	48	5,407	1,607
1957	480	26	4,527	1,445
Indicated Sept. 1, 1958	561	37	5,000	1,797

new record production is expected in 1958. In the case of flaxseed and cottonseed, new records are not being set, although increases over a year ago are expected.

Price and Production Outlook

It should be understood that prediction of future trends of almost any economic activity is extremely hazardous. However, management decision must be made and outlook is a consideration. It would seem reasonable that we can expect the continuation, at least for some years to come, of the upward trend in the utilization of high-protein feed. The effect of increased livestock numbers may be offset, in part, by improved conversion rates. However, for some classes of livestock, the saturation point appears to be some distance from achievement.

It would appear, based upon the livestock numbers to be fed and the size of the crops being harvested, that there will be a sufficient supply of high-protein feeds to meet needs this year. One would expect the prices to level off at or near support rates for the various crops through most of the crushing season.

Suggests Added Vitamin A

MANHATTAN, KANSAS — The key to feeding for summer egg production is greater fortification of feed with vitamin A, antibiotics and such nutrients so that even though the laying hen consumes less feed, nutrient needs for egg production are more than adequately provided for.

This is the opinion of Dr. Paul E. Sanford, poultry nutritionist at Kansas State College.

Dr. Sanford says that feeding laying hens four times the recommended level of vitamin A during the stress of summer months has resulted in dramatic responses in Kansas State tests.

In one experiment, single comb White Leghorn hens received 8,000 international units of vitamin A per pound of ration, as compared with the recommended 2,000 units. The hens laid larger eggs with stronger egg shells and, in the particular test, laid 38% more eggs. The cost of adding the additional vitamin A to the ration was only $2 a ton of feed.

PURINA DECLARES DIVIDEND

ST. LOUIS—The directors of the Ralston Purina Co., St. Louis, have declared a quarterly dividend of 30¢ a share on the common stock, payable Dec. 12, 1958, to shareholders of record on Nov. 21, 1958.

American Cyanamid Grants-in-Aid Program Described

NEW YORK — The American Cyanamid Co. has announced that during the first six months of 1958, its agricultural division issued 53 grants-in-aid to agricultural experiment stations.

Cyanamid is placing more emphasis on research in animal and poultry health products, said Dr. Sterling Brackett, director of animal industry development. The company has allocated more than one third of the grant-in-aid funds for studies of cattle and sheep diseases and feed problems.

Also, considerable attention will be focused on Aureomycin chlortetracycline, to determine its effectiveness in controlling such diseases as leptospirosis in cattle and vibriosis and urinary calculi in sheep, said Dr. Brackett.

Cyanamid is also supporting research on two other diseases, mastitis and bloat. The mastitis grant is to develop vaccine against staphylococcal mastitis, for which there is no completely satisfactory treatment at present.

Aureomycin will be tested as a possible preventive of pneumonia and scours of calves in high mountain areas and of shipping fever of feeder lambs. Dr. Brackett said that other grants cover studies involving the feeding of the antibiotic to poultry as well as livestock to promote improved growth and feed efficiency.

Further work on two other cattle diseases, "pinkeye" and grubs, is planned, too.

Poultry and swine diseases have also been given grant-in-aid attention, Dr. Brackett continued. Such infectious diseases of poultry as coccidiosis, CRD, synovitis and leucosis are being researched.

Cyanamid's current contributions in the swine field consist of grants-in-aid to study feed additives and their safety and compatibility in feeds, virus pneumonia and the role of the bacteria E. coli, in swine diseases.

New Bulk Loader

SPOKANE, WASH.—A new, convertible bulk feed loader and unloader will be marketed here by Bulk Booster Co. The unit, which can be attached to regular equipment, will handle all types of bulk feed. Inventor of the new device is Jack Finch, Aslin-Finch Feed Co. Sales will be in charge of the Carter-Mill Furnishing Co., Spokane.

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Hog Millet Proves "Disappointing" in Pellets for Hogs

FARGO, N. D.—Results of feeding trials investigating the use of various substitutes for barley in pelleted rations for swine were reported in a recent issue of North Dakota Farm Research, a publication of the North Dakota Agricultural Experiment Station.

The research was reported by Dr. W. E. Dinusson, animal nutritionist; Dr. D. W. Bolin, associate animal nutritionist; Duane O. Erickson, graduate assistant, and M. L. Buchanan, chief of the division of animal husbandry.

Increased use of pelleted barley rations for swine in the state has led farmers and feed processors to ask whether proso (hog millet), screenings or molasses can be used in the barley pellet, the report said.

Earlier research at North Dakota indicated that proso was about equal to corn when fed in meal rations. A feed analysis shows proso to be about the same as barley or oats in protein, almost equal to barley in energy, higher in fiber than barley and higher in fat than barley but lower in fat than oats. The proso was tried in pelleted form in an experiment in which lots of pigs were fed proso, "mill" oats and molasses as substitutes for barley.

Preliminary experiments with screenings showed that young weanling pigs refused to eat rations containing large amounts of pigeon grass seeds, wild buckwheat and buckwheat and small amounts of such seeds as mustard, pig weed, etc.

"Mill" Oats

"Mill" oats, used in this experiment, is a by-product of the grain industry containing primarily wild oats, light tame oats, barley needles and a small proportion of other cracked cereal grains, but it is relatively free from small, hard seeds. "Mill" oats used in this experiment weighed 27 lb. per bushel and contained about 14.5% crude fiber.

In the experiment, 60 Beltsville x Duroc cross bred pigs averaging 36 lb. were placed in 10 lots. They had been fed a pelleted creep feed while on the sow and a pelleted grower ration until placed on experiment.

Pigs fed a barley pellet or a pellet with 4% cane molasses and 1.75% soybean oil meal made average daily gains. The addition of molasses and soybean oil meal did not increase rate of gain or feed efficiency. The lots on molasses consumed slightly less feed per day, but this apparently did not affect feed efficiency.

Pigs on the "mill" oats "gained very well considering the high fiber content of the ration," the report said. However, the barley-fed pigs gained 16% faster on about 20% less feed per pound of gain. Thus, to compete with barley pellets, the "mill" oat rations would have to sell for at least 20% less per ton, not allowing anything for the slower gain, which required 14 days longer to reach 200 lb.

Proso Disappointing

The report said the response of the pigs fed the proso or proso-barley (80% of the barley in the basal ration replaced by proso) pellets was disappointing. They gained poorly and did not stay on feed. Data on feed per day and feed per 100 lb. gain was not reliable because the pigs at times rooted the feed out of the feeders and at no time did they eat enough to promote normal gains.

"This has also been true in other pilot trials where proso was used as the main grain," the report said. "Although in this experiment barley was used as 20% of the grain, other trials where barley formed 50% of the grain gave no better results.

"It is provoking to notice that, where previous experiments have shown proso equal to corn when fed in meal form, pelleting appears to alter or reduce either palatability and/or nutritive value so drastically."

That this situation is peculiar to swine is indicated by excellent results from pelleting proso for turkeys in earlier North Dakota tests. The report said that until an answer is found, proso should be fed to swine in meal form and not pelleted.

BROILER BUSINESS BOOMS IN MEXICO

WASHINGTON — Production of broiler meat in Mexico is expected to total about 13 million pounds in 1958, and another large increase is likely in 1959, according to the Foreign Agricultural Service, U.S. Department of Agriculture. Mexican broiler meat production in 1957 is estimated at 11 million pounds. Because of a shortage of meat-type chicks in Mexico, many of the birds sold there as broilers are reported to be lay-breed cockerels, the by-product of an expanding hatching industry.

Holds Sales Meeting

KANSAS CITY — Sales personnel with National Alfalfa Dehydrating & Milling Co. from throughout the U.S. were in Kansas City recently for an all-day sales meeting. Henry Hofmann, company president, outlined plans for the coming year and A. R. McFadden, vice president, presented the National sales program and goals.

The 15 men attending later visited the Morris Feed Yards just outside of Kansas City where National has 58 steers on a feeding trial with the "energized" hay pellets which National recently started producing. John Clay, in charge of this new program, gave a progress report.

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More "Specialized" Clinics Scheduled At NTF Convention

DES MOINES—Specialized clinics and conferences aimed at today's highly specialized turkey industry will be features of the National Turkey Federation convention to be held Jan. 6-8 in Des Moines.

The plan to present more technical information than has been offered in the past was approved at a recent meeting of the convention program advisory committee. The announcement said that while presentation of subject matter will be more technical than in the past, those taking part in the program will keep their presentations understandable to average turkey people.

Members of the advisory committee are Dr. J. Holmes Martin, head, poultry department, Purdue University; G. E. Annin, extension poultry specialist, University of Wisconsin, and John W. Hough, editor, Turkey World, Mt. Morris, Ill.

The Jan. 6 morning session will be a turkey research clinic under the direction of Dr. Cliff Carpenter, chairman of the federation's research advisory committee. Presented at the session will be results from the 15 research projects supported in part by NTF research funds. A general clinic on how to solve the economic problems of the fast-growing industry will be held during the afternoon. Peter Crafts, president of the NTF, will speak.

A turkey merchandising clinic will be held the morning of Jan. 7. This will be under the leadership of Clay Robinson and other representatives of Evans & Associates, the public relations firm in charge of the "Eat More Turkey" campaign promotions. The afternoon program will deal with the subject of management for year around production. Such subjects as controlled environment for both breeders and growing birds, pitfalls of mass production, feeding for finish at different ages and under different climatic conditions and economic problems of breeding, poult production and management of growing birds will be covered at the clinic.

The morning of Jan. 8 will be devoted to a turkey inspection clinic. Hermon I. Miller, director of the poultry division of the Agricultural Marketing Service, and four or five managers of processing plants will handle the discussion, and Dr. Robert Phillips, head of the poultry department at Iowa State College, will preside.

Another feature the morning of Jan. 8 will be a "coffee gobble" under the direction of the Poultry & Egg National Board.

Scheduled for the afternoon of the last day will be the turkey disease clinic. Bluecomb and sinusitis will be discussed along with field observations in turkey disease control. The finale of the convention will be Dr. W. A. Billings with his perennial subject, "Talking Turkey."

SPOTTED ALFALFA APHID FOUND IN OREGON

PORTLAND, ORE. — The spotted alfalfa aphid has been discovered in Oregon for the first time, and the Oregon Department of Agriculture has ordered a survey to determine the extent of the infestation. The discovery was made in alfalfa fields near Pendleton, in Umatilla county.

Indiana Poultry Group Sets Annual Meeting

LAFAYETTE, IND.—Purdue University staff members will be joined by poultrymen and other outside speakers Oct. 21-22 in discussions of poultry problems at the 40th annual meeting of the Indiana State Poultry Assn., Inc.

The program will be held in Fowler Hall on the Purdue University campus.

Highlights of the two-day meeting will include a smorgasbord luncheon for ladies Oct. 21, the annual banquet the evening of Oct. 21 and a dedication and presentation to the university of the A. G. (Chick) Philips room and portrait in the new Purdue Memorial Center. Mr. Philips was an official of Allied Mills and a well known figure in poultry circles.

A panel the morning of Oct. 21 will discuss "Cost Factors in Producing Hatching Eggs." Following the panel will be a discussion of the National Egg Council by Vern Steckley, president of the American Poultry & Hatchery Federation.

Discussions during the afternoon of Oct. 21 will include a talk on "Indiana Feed Inspection in the Integrated Poultry Industry" by A. S. Carter, technologist at Purdue.

Dr. Earl Butz, dean of the Purdue School of Agriculture, will be the speaker at the annual banquet. He will discuss "Future—Flock—Faith."

Discussions Oct. 22 will include "No Time for Management," by. Dr. William Farris of the Purdue staff. John Rogler of the poultry husbandry staff will talk on "Radioactive Feed for Research."

Discussions during the afternoon will include a talk on "The Wage-Hour Law vs. Integrated Poultry Projects" by Charles Hoffhaus, Gage, Hillix, Moore & Park; a panel on "Additives and Disease Problems," by Dr. Joe Ostendorf, Dr. Larry Price and Dr. A. L. Andrews, and a talk on the question, "Is Controlled Environment Practical?" by Dr. Jack Long.

California Meat-Type Beef Project Planned

CARMEL, CAL.—A beef research project aimed at developing a meat-type beef animal at the University of California won support recently from the Western States Meat Packers Assn.

The board of directors of the association voted at a recent meeting here to join with the California Cattlemens Assn. and the California Cattle Feeders Assn. in helping to support the project.

Brucellosis Eradication

COLUMBIA, S.C. — Steady progress is being made in brucellosis eradication in South Carolina, Dr. R. W. Carter, director of the program, reports. Dr. Carter declared that 19 South Carolina counties have been designated as modified certified brucellosis-free areas. He added that Georgia is making rapid progress and is in about the same phase in the certification program as South Carolina.

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New Plan Finds Gossypol Content Of Mixed Feeds

NEW ORLEANS — A method for the determination of free and total gossypol in mixed feeds has been favorably reported by three collaborating laboratories, according to Carroll L. Hoffpauir, associate referee on gossypol determination methods for the Association of Official Agricultural Chemists.

Mr. Hoffpauir, when he makes his report at the annual meeting of the association in October, plans to recommend collaborative testing of the procedure for one more year. If findings are again satisfactory, adoption of the procedure for official use will be recommended.

An accurate method for determination of gossypol in mixed feed is especially important because of the increasing use of cottonseed meal in feeds for poultry and swine. These animals are adversely affected by the presence of free gossypol in amounts above their levels of tolerance, which are low.

Mr. Hoffpauir and other scientists at the Southern Utilization Research and Development Division of the Agricultural Research Service, USDA, New Orleans, have been working for several years on analytical methods for the determination of gossypol. Methods developed for measuring the gossypol content of cottonseed meal are not satisfactory for mixed feeds containing cottonseed meal because other feed constituents interfere with reliability of the measurements.

The procedure now being tested is one of the results of their investigations. Mr. Hoffpauir described it to the AOAC last year, and it was published by Walter A. Pons, Jr., and Mr. Hoffpauir in the AOAC Journal.

The AOAC is an official organization with responsibility for methods of analysis for foods, dairy products, cosmetics, feeds, fertilizers, and other materials.

Its methods are adopted as official by many states, and are so used by other agencies, such as the Food and Drug Administration. Chemists and other workers along analytical and research lines on these products in the employ of the U.S. Department of Agriculture, experiment stations, colleges, and other bodies engaged in research in agricultural chemistry, and national, state, and provincial control agencies are members of the AOAC.

Eriez Vibrators Get Mill Mutual Approval

ERIE, PA.—Vibratory Feeders and Unit (bin) vibrators made by the Eriez Manufacturing Co., Erie, have been found acceptable by the Mill Mutual Fire Prevention Bureau for installations in hazardous, dusty locations as defined under Class II, Group G of the National Electrical Code, according to the Eriez firm.

The bin vibrators (series MV3A), used for concentrated, pin-point vibration of bins, hoppers, etc., are completely enclosed, neoprene gasketed and have a heavy-duty cord leading through an epoxy resin sealed outlet to the magnetic drive element. The vibratory feeders (series MV3B), used to feed and control at any desired rate, have similar special construction features including completely enclosed drive, epoxy sealed electrical coil, built-in glass fiber disc springs and corrosion resistant design.

The company announcement pointed out that since the feeders and bin vibrators comply with the Mill Mutual requirements in regard to standard electrical installation, there is no charge or penalties when they are used.

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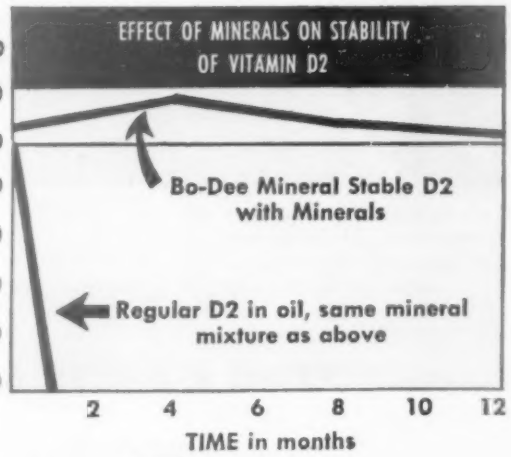
Tricalcium phosphate	13.00	Manganese sulfate	0.10
Magnesium sulfate	10.00	Cobalt sulfate	0.02
Iodized sodium chloride			20.00%



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Condemns "Careless Use" of Drugs for Turkey Diseases

FT. COLLINS, COLO. — Colorado State University's Turkey Day program drew about 50 growers who heard several turkey experts condemn "indiscriminate use" of antibiotics and other disease-prevention drugs.

Especially critical was Dr. C. L. Seger of the university diagnostic laboratory who said that careless use of these drugs has led to a marked increase in fungus and mold infections in turkeys. Other harmful effects which may be traced to the drugs include abnormal blood circulation systems and a breakdown in normal body processes, he said.

Dr. Seger mentioned that disease diagnosis is becoming increasingly difficult because many disease problems are actually multiple infections involving two or three different disease-producing agents. As a result, it is difficult to distinguish the primary disease from the secondary infections.

The veterinarian added that there is a steady increase in problems of internal hemorrhage, and he noted that this condition often is associated with air sac or chronic respiratory diseases.

Turkey Space Needs

Dr. Robert Moreng, head of the university poultry department, reported on research in space requirements for turkeys. Overcrowding in pole sheds can seriously hurt their performance, he said. According to present knowledge, hen turkeys require about 3 sq. ft. of floor space in confined sheds, while the toms need 4 sq. ft.

"Subsequent research may reveal that hens can get along with less space, but the toms may need a boost over the recommended four square feet," Dr. Moreng said.

Reporting on the university breeding project, Dr. Moreng said that hybridization along with strain crossing may point the way to superior turkeys. "The drawback at present is the cost of working with inbred stock; it is impractical for commercial operations. Strain crosses appear to be more economical and may prove practical for commercial production," he commented.

Dr. Paul Thornton, also a member of the university poultry staff, brought up the controversy about the highly fortified pre-starter feeds. Research along this line is inconclusive, he said. "One year the highly fortified feeds had harmful effects on the poults during early age; the next year, growth was boosted," Dr. Thornton pointed out.

T. E. Hartung, the university's extension poultryman, discussed the pelleting of feeds. Pelleting appears to show less difference with birds raised in confinement, compared with those raised on the range. He also added that the higher the fiber content of a feed the more advantage there is in having it pelleted.

Mr. Hartung told about a recent national survey in which turkey was rated an "economical food" by 79% of the consumers. However, he said that the turkey industry faces a challenge because only one third of the consumers surveyed felt turkey was a "necessary food."

Colorado Runs Turkey Management Tests

MT. MORRIS, ILL.—According to a National Turkey Federation report poultry scientists at Colorado State University are conducting a project to find how much floor space, water and feeder space a growing turkey needs.

Dr. Robert E. Moreng, head of the poultry husbandry department at the university, said little is known about space requirements for turkeys, but that he expects to find some answers in the research project. The work is being supported in part by grants of $1,000 from the national federation and $500 from the Colorado Turkey Federation.

The study will involve 1,075 birds, starting at the age of 16 weeks, until they are ready for market (24 weeks). They will be divided into six pens, each pen measuring 16x36 ft., in the university's new turkey pole house. The number of turkeys assigned to each pen will determine the amount of floor space for each bird.

Toms will be tested for 5, 4 and 3 sq. ft. per bird, and hens will be given 4, 3 and 2 sq. ft. Feed and water space per bird will remain constant during the experiment.

Effects of the amount of "elbow room" on growth, feed efficiency and market grade will be studied for each sex. Appearance and amount of moisture in the litter will also be recorded.

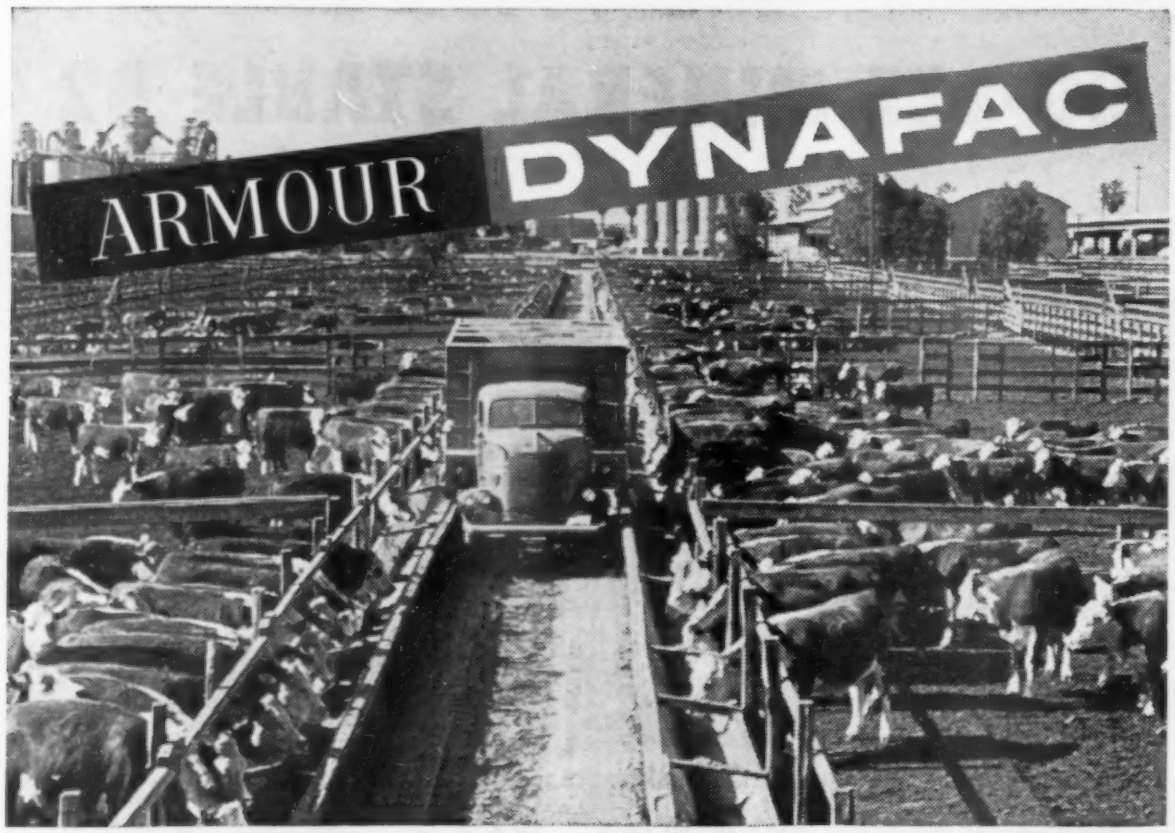
Another phase of the project will be to determine the possible influence of feeder and water space as related to floor space.

In the age period of 16-24 weeks, the turkey is in its most critical stage of growth. Future studies will include younger birds, which may have different space requirements.

Texas Poultrymen Form Egg Council

COLLEGE STATION, TEXAS — All segments of the Texas egg industry — producers, egg dealers and wholesalers, feed dealers and hatcheries—are represented on the board of the state's newest agricultural commodity organization.

The Texas Egg Council formally came into being recently when the 15-man board of directors met in Waco. Clarence Foster, Dallas, was named president; N. J. Robnett, Lubbock, first vice president; W. J. Moore, Bryan, second vice president; F. Z. Beanblossom, extension poultry marketing specialist, executive vice president; T. A. Hensarling, Stephenville, executive secretary-treasurer and Dr. John H. Quisenberry, poultry science department, Texas A&M College, an ex-officio member of the board.



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NRA CONTEST—Winner of a contest sponsored by the National Renderers Assn. to mark the association's 25th anniversary will be announced Nov. 4. The contest was held for everyone working in and associated with rendering, agricultural or related fields of business and industry. Contestants were judged on aptness and originality in completing the statement: "In its first 25 years, I feel the most important contribution of the National Renderers Assn. to the rendering industry and agriculture has been . . ." The contest closed Oct. 1. In the picture Miss Jamie Fox, secretary-treasurer of NRA, checks details of the contest with R. P. Boers, Reuben H. Donnelley Corp., judging organization retained by NRA to judge the contest entries.

Management Workshop Included in APHF's Regional "Quickies"

KANSAS CITY, MO.—A management workshop and clinic, used at the American Poultry and Hatchery Federation's midwestern "Quickie" meeting last January, will be expanded and included in the program for APHF's western, eastern and southern "quickies" this winter, APHF said.

The schedule for the "Quickies" follows:

- Western region, Dec. 5-6, Disneyland Hotel, Anaheim, Cal.
- Eastern region, Dec. 10-12, Hotel Shelton, Springfield, Mass.
- Southern region, Jan. 24-26, Hotel Dinkler-Plaza, Atlanta, Ga.
- Midwestern region, Jan. 9-10, Hotel Fort Des Moines, Des Moines, Iowa.

The western, eastern and southern "quickies" will be identical, but the midwestern program will be new, APHF said.

The workshop and clinic is directed and produced for APHF by the Lawrence-Leiter Co., Kansas City.

Salesmanship and management leadership evaluation will be the key points in the clinic.

The clinic consists of an initial three hour session followed by a self-evaluation test for participants. Tom Lawrence of Lawrence-Leiter conducts the first session and then scores the test, helping the hatcherymen assay their own strength and weaknesses in management ability, APHF said.

The hatcherymen are then shown how to apply their assets to the greatest advantage and how to overcome weaknesses.

Reservations for room accommodations at the various "Quickies" should be made without delay, APHF warned. Reservations at the Disneyland Hotel, Anaheim, Cal., will be accepted only until Nov. 15.

Rooms available at the Dinkler-Plaza in Atlanta are for Jan. 24-26 only; none can be held beyond that date because of prior reservations for the Southeastern Poultry and Egg Assn. convention. It is suggested by APHF that persons expecting to remain over for that convention, Jan. 26-28, write to the following hotels for rooms: Henry Grady, Georgian and Peachtree on Peachtree and Heart-of-Atlanta Motel.

5 Pennsylvania Co-ops Form Marketing Group

HARRISBURG, PA.—A marketing association has been formed by five egg-producer cooperatives in Pennsylvania. The new group is to be called the Pennsylvania Egg & Poultry Assn.

According to a report in The Poultryman, a poultry industry publication, the organization includes the Producers Cooperative Exchange, Coatesville; Lehigh Valley Egg Producers Cooperative Assn., Bethlehem; Bucks County Producers Cooperative Assn., Doylestown; Tri-County Producers Cooperative Assn., Inc., Worcester, and the Butler (Pa.) Cooperative Egg Auction, Inc.

These cooperatives' combined volume is said to be more than a million cases of eggs a year.

Although the five cooperatives have worked together on educational and legislative matters, the new organization is reported to be the first joint move in marketing.

The co-ops involved are quoted as indicating that they hope to perform a better marketing service and achieve this through greater plant efficiency and the ability to supply greater volume to larger outlets, in addition to serving smaller buyers.

Each co-op member is expected to continue as a functioning organization.

Provisions have been made for additional groups to join the new organization if they meet operation and egg quality control standards, spokesmen said.

Dr. O. G. Daniel Joins Georgia Extension

ATHENS, GA.—Dr. O'Dell G. Daniel has been named extension project leader of animal husbandry at the University of Georgia.

W. A. Sutton, director of the extension service, said the livestock program is designed to increase the number and to improve the quality of livestock in Georgia.

He said the goal is to increase by 1965 the number of beef cattle from 1.2 to 1.5 million, the number of hogs from 1,730,000 to 2 million, and the number of sheep from 35,000 to 75,000.

Dr. Daniel was formerly dean of agriculture and head of the livestock department at Panhandle A&M College. He is a graduate of University of Maryland, and received both his M.S. and Ph.D. degrees in animal husbandry from Oklahoma State University.

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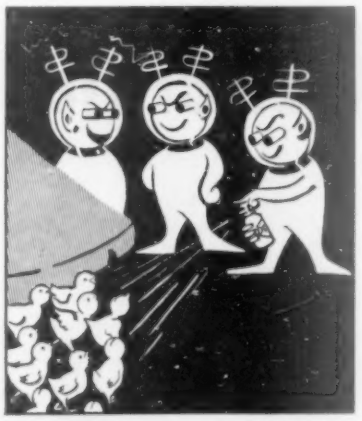

"We had a very successful trip! These DPL vaccines give the best protection on earth."

Every "new" poultry area has rapidly accepted DPL's quality vaccines because they furnish a down-to-earth answer to the needs of every farm, of every situation. Delaware Poultry Laboratories offer a wide choice of thoroughly tested vaccines and a wide choice of thoroughly tested vaccination methods, making it easy to find the right combination for every farm. May we help you find the right DPL combination for your operation? Fill in the questionnaire and take advantage of this free DPL service today.

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A tailor-made vaccination program.

I raise ..... at a time.

My farm is .... miles to nearest farm.

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Any particular health problem? Please explain fully.

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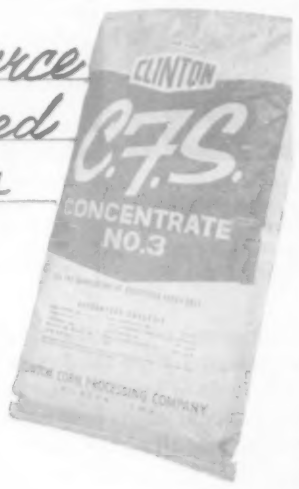

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For the feed manufacturer or feeder, Clinton C.F.S. Concentrate #3 is a profitable ingredient partially replacing — or even eliminating — more costly sources of unidentified growth factors and other important nutrients. It is exceptionally potent in organic and inorganic growth factors, important B vitamins and quality proteins.

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BROILER FEED

(Continued from page 34)

gredients in a manner comparable to the tables of the previous article.

In the tables of the previous article, we gave information on cost of the ingredient in solution in a column of the tables. In the tableau layout given in Table 2, this information is given in the leftmost column under the heading "C_j". You will note that all the "costs," except for "P_3", are "—M". This is a conventional designation that indicates "This ingredient costs so much you won't use any of it in the least-cost mix." When we put this problem on our computer we set "—M" equal to $1,000 per unit. If this ever proved to be too low, we would set it at whatever was required to force the "ingredient" out of the mix. The "cost" of "P_3" is zero. We don't care if this "artificial" ingredient (i.e. "non-fiber") stays in the mix. If it does stay in, this merely indicates that it is cheaper to formulate a feed with less than the permitted maximum of fiber than it is to go to the maximum.

The cost of the items that are considered for entry into the mix are given on the top row of the tableau—the "C_j" row.

The initial tableau, as we present it in Table 2 and also in the broiler report, does not contain rows comparable to those called "displacement value" and "displacement value less cost" in the previous article. You can see, however, that all the information needed to calculate these values is given in this tableau. These are the first computations made by the computer in the solution routine.

You should now be in a position to work toward an understanding of this linear programming model of a broiler feed. It is perhaps as complex as any you will need to deal with. In the next article, we will deal with a relatively simple dairy feed model. You may be surpised that we would go from the complex to the simple problem, but there is a reason. We want to demonstrate in that article how a model may be simplified and still give valid answers at a saving in computation time and cost.

TURKEY BONUS — The California Turkey Promotion Advisory Board did its best the past season to keep up the batting average of the San Francisco Giants. For every hit registered by a Giant batter during a big league game, the board gave the batter a turkey—a 20-lb. bird for a home run, 15 lb. for a triple, 10 lb. for a double and 5 lb. for a single. In the picture Willie Mays is shown receiving a 20-lb. bird. Publicity was given to the gifts on sport pages in California, on the daily game broadcasts and in various local newspaper columns.

FEED COMPANY SOLD

FRIDAY HARBOR, WASH. — The San Juan Agricultural Co. here, pionere feed and grain company, has been sold to William E. Murphy, Seattle.

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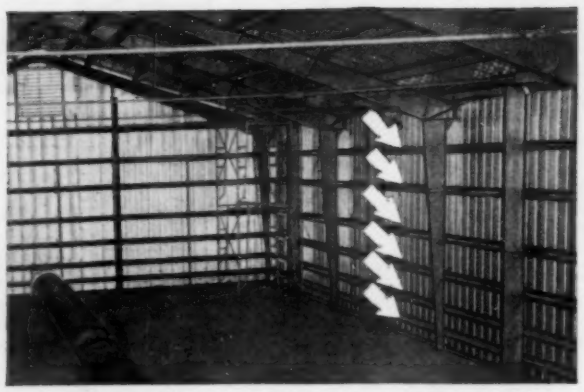
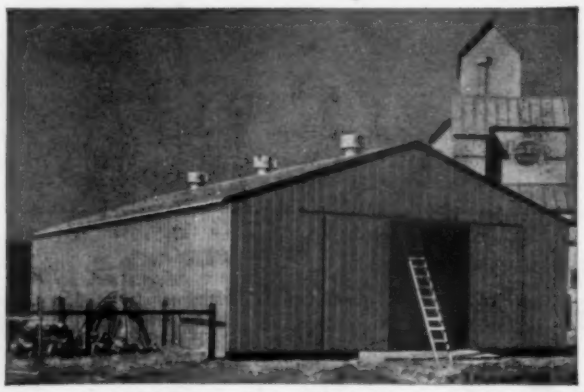
Butler guide to safe flat storage

An ordinary building just won't do. Choose one specially engineered for grain storage—built by a company which knows grain storage problems. Note how the basic structure above—nearly ready for paneling—provides vertical steel support every ten feet, clear around the building.



Extra horizontal support is important too. Steel Z-girts, bolted to the verticals, should be closely spaced to further strengthen sidewalls against the tremendous pressures grain builds up. Butler grain buildings contain at least three times as many Z-girts as Butler's heaviest industrial building.

This you know: structural strength alone won't protect grade. Your cover must be tight, must seal moisture and vermin out. Cover panels must be die-formed to assure perfect fit, should double-bolt to every purlin and girt they connect to — with weathersealing compound applied between each panel lap.



You should be able to order your building in exactly the size you need. It should be easy to load and unload . . . economical to expand. And your building should have features that will let you use or lease it profitably for other purposes, should your future practices change.

They say your grain is only as good as the building you keep it in and this makes a new flat storage building something special. So rather than take chances with *your* profits, follow the Butler Guide to Safe Flat Storage. Better yet, buy a Butler building because this guide—as you might suspect—is based on the actual construction of the building that outsells all other makes . . . a Butler. Strength is built right into it, from the strong steel frames to the tough, die-formed cover. It is a building especially designed and engineered for its job by people who really know the grain storage business. Like a catalog about this "finest flat storage structure in the world"? Ask your Butler Builder, listed under "Buildings" or "Steel Buildings" in the Yellow Pages of your telephone directory, or write us direct.

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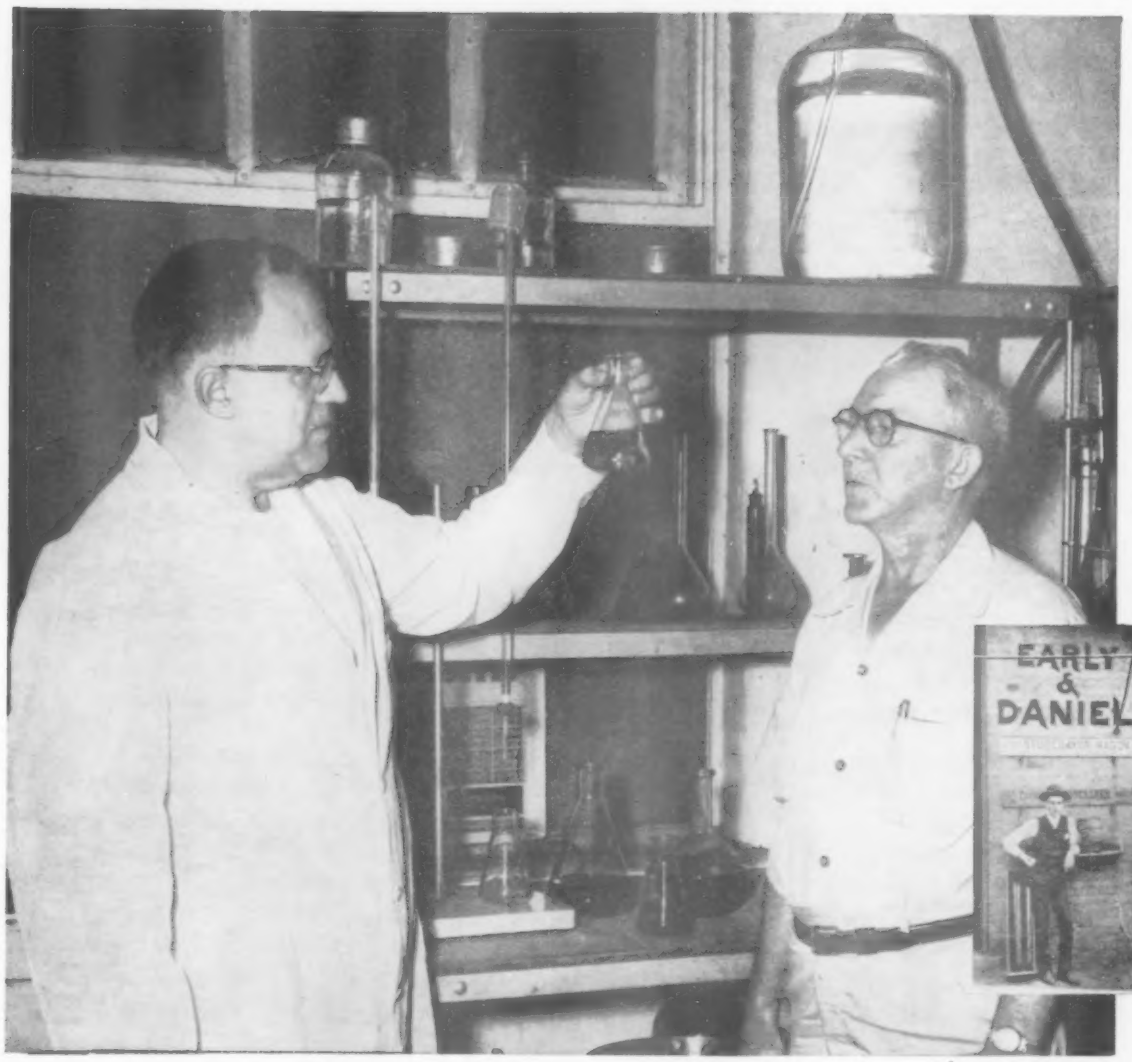
75-Year-Old Manufacturer Finds Fat In Feed Ups Demand, Sales



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Founded in 1881, the Early & Daniel Company now operate plants in Cincinnati, Ohio, Sumter, S. Car., and Tampa, Florida, and maintain ten branch warehouses.

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nra national renderers association

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WHEN THE

..LAST.WEEK.	WHEAT	CORN	OATS	RYE	SOYBEANS	SOR
7.526	305.685	86.053	12.715	6.088	6.036	10.507

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PRICE IS RIGHT

Barley can be the principal grain in your poultry rations—Western barley feeds treated with AGROZYME*—now rival feeding value of corn

*New enzyme mixture from Merck

GHUMS	..LAST.YEAR.WHEAT	CORN	BARLEY	OATS	RYE	SOYBEANS
54.638		288.492	124.450	24.411	10.495	5.858	4.980

Barley, one of the most important cereals grown in the west, should be fed as the principal grain if the price is right and, if AGROZYME is added to overcome problems of growth depression, lowered feed efficiency (in comparison to yellow corn diets) and sticky droppings.

Enzyme Treatment of Barley Feeds... A Practical, Profitable Milling Procedure

The work of Dr. James McGinnis and his associates at the State College of Washington—since confirmed by researchers in the Universities of Oregon and Utah and in the Merck Laboratories—has demonstrated the remarkable effects of enzymes in overcoming the objectionable features of feeds containing barley as the principal grain.

Tests under field conditions have showed that the addition of one pound of AGROZYME to one ton of feed containing as much as 1,000 pounds of barley yields results in growth and feed efficiency that closely approximate those obtained with corn. Birds fed enzyme-treated barley grow essentially as well as corn-fed birds with a considerable reduction in feed cost.

Not All Barleys Improved by Enzyme Treatment

Barleys grown in western states and western Canada appear to benefit most from the addition of AGROZYME regardless of variety.

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New Products
New Services
New Literature

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

No. 7218—Case Imprinter

A manually operated machine that imprints contents, brand and distributor or packer name and address on the ends of shipping containers has been announced by Rotary Imprinter, Inc. The carton printer can imprint copy legends up to 9 in. wide by 6 in. high, the company says. The machine, rubber type and liquid inks in any color are furnished by the firm. For further details, check No. 7218 on the coupon and mail to this publication.

No. 7221—Grain Conveyor Folder

A promotion folder, containing information about the Vac-U-Vator is available from Vac-U-Vator, Division of Dunbar Kapple, Inc. The folder discusses the Big Vac 980, with a new cleaner, which can load 1,200 to 1,500 bu. an hour, the company says. According to the folder, the unit will clean grain while it conveys, will turn and clean grain in flat storage or bins, will elevate up to 75 ft., can convey up to 400 ft. away and will do many other jobs. Check No. 7221 on coupon and mail for details.

No. 7216—Grain Fumigant Literature

The Dow Chemical Co. is offering literature on its new grain fumigant, Serafume. Included in the publications are brochures, illustrated posters, booklets and specification sheets. For more information, check No. 7216 on the coupon and mail to this publication.

No. 2053—New Bag Concept

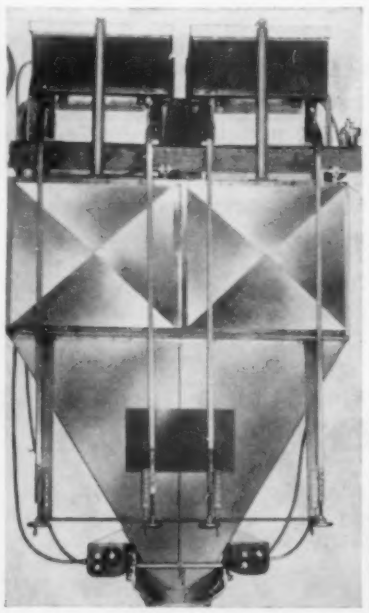
A single-gusset, sewn-valve multiwall bag which the manufacturers say is a new concept in bag construction, has been developed and introduced by Bemis Bro. Bag Co. Designers say the single-gusset is difficult to distinguish from the two-gusset multiwall when filled, but that it stacks uniformly and can be easily palletized. Advantages cited include additional usable space created by the flat tube side, more room for product flow during filling, and reduction of blowouts. Products fed into the bags do not back up and clog the filler spout, cutting packaging time and labor. Extra space provided by the flat tube side often permits utilization of a shorter bag and consequent reduction of the manufacturing cost of bagged products, according to Bemis officials. For more information check No. 2053 on the coupon.

No. 7219—Control System Bulletin

The new "Boss Board" control system for formula changeover is described in a bulletin offered by Richardson Scale Co. By means of individual Boss Boards, the bulletin says, formulas can be changed instantly by locking into place the proper Boss Board, set for the required formula. The bulletin, NP-1, describes how the control is used with Richardson "Select-O-Weigh" systems to complete the automation of batching and mixing operations. Check No. 7219 on the coupon and mail for details.

No. 7220—Packing Scale

A high speed packing (or bagging) scale has been announced by the Thayer Scale Corp. The model, 2N-18CC, is an automatic duplex filling unit consisting of two net weigher scales discharging into a common hopper. The company says the double feeder permits either single or dual operation, and the control panel gives the operator continual view of the scale's operational cycle. For more details, check No. 7220 and mail to this publication.



No. 7222—Corn Grader Bulletin

The availability of a technical bulletin on the Gyro-Whip cracked corn grader with aspirating legs has been announced by Sprout, Waldron & Co., Inc. Bulletin 171-A gives construction and design details and tables of specifications. The bulletin says use of the machine will insure clean, uniform, attractive cracked corn, accurate grading and efficient operation. Check No. 7222 on the coupon and mail to this publication for details.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7145—Twin-hook hoist carrier, Cleveland Tramrail Division, Cleveland Crane & Engineering Co.

No. 7146 — "Janitorial" clean-up cart, Screw Conveyor Corp.

No. 7147—Aureomycin guide booklet, Agricultural Division, American Cyanamid Co.

No. 7148—Hog programming chart, Ranger Equipment Co.

No. 7149—Baled hay grinder, Barnard & Leas Manufacturing Co., Inc.

No. 7150—Granular phosphate leaflet, Coronet Phosphate Co.

No. 7151—Automatic bag printer,

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No. 7155—Bulk feed storage tanks, Day Sales Co.

No. 7156—Poultry disease guide, Dr. Salsbury's Laboratories.

No. 7157—Automatic flat drop machine for testing filled multiwall bags, St. Regis Paper Co.

No. 7158—Grain fumigant pump, Tryco Manufacturing Co., Inc.

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No. 7160—Portable pump for grain fumigants, Douglas Chemical Co.

No. 7161—Bulk feed unit, Seco, Inc.

No. 7162—Basic pneumatic handling systems for bulk materials, Fuller Co.

No. 7163—Literature on buildings, Steel Structures, Inc.

No. 7164—Pneumatic bulk trailer, blending device, Seedburo Equipment Co.

No. 7165—Bagging scale bulletin, Richardson Scale Co.

No. 7166—Grain aeration system, Monroe Grain Aeration Co.

No. 7167—Agricultural films, American Cyanamid Co.

No. 7168—Feed lot automation bulletin, Sprout, Waldron & Co., Inc.

No. 7169—Belt conveyor, Bunke-Musser, Inc.

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No. 7176—Rental program for Tote bins, Tote System, Inc.

No. 7177—Poultry feed fortification product, Borden Co.

No. 7178—Automatic tubular water warmer, Smith-Gates Corp.

No. 7179 — Handbook on copy boards, Wagner Sign Service, Inc.

No. 7180—Bulk shipping container, Ohio Boxboard Co.

No. 7181—Steel buildings in color, Stran-Steel Corp.

No. 7182—Grain drying equipment catalog, Aeroglide Corp.

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No. 7184—Four-ton capacity bulk feed bin, Leach Manufacturing Co.

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No. 7186 — Automatic "tare-out" system, Richardson Scale Co.

No. 7187—Bulletin on pneumatic conveyor design, Sprout, Waldron & Co.

No. 7190 — Feeding trial results brochure, Flavor Corporation of America.

No. 7191 — Trough-belt conveyor, Universal Hoist Co.

No. 7192—Grain roller mill, W-W Grinder Corp.

No. 7193—Vacuum barrel handling unit, Vac-U-Lift Co.

No. 7194—Grain fumigator, Seedburo Equipment Co.

No. 7195—Bulk-bag feed body, Henderson Manufacturing Co.

No. 7196 — Fourteen-hole laying nest, Oakes Manufacturing Co.

No. 7197—Peebles' 50-lb. red whey block, Western Condensing Co.

President Elected

FT. WORTH—J. I. Jackson of Ft. Worth has been elected president and chief executive officer of the Fort Worth Steel & Machinery Co., J. D. Brance, chairman of the board of directors, has announced.

As president Mr. Jackson succeeds G. A. Jaggers, who resigned to become a management consultant, and as chief executive officer he succeeds Mr. Brance, who retired from that position but remains chairman of the board. Mr. Jackson previously was president of the firm from 1930 to 1954.

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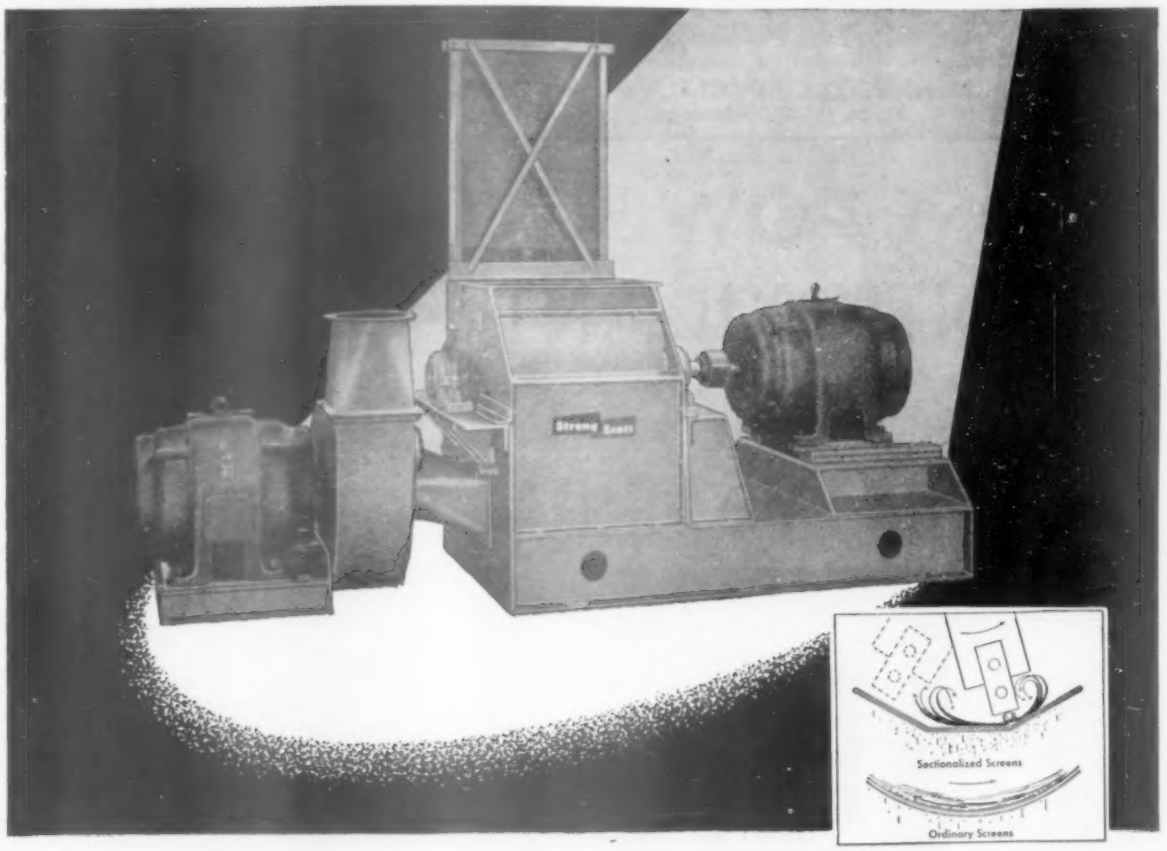

Strong-Scott presents a new idea in Hammermill operation

Sectionalized screens offer higher capacities through "Vortex Grinding Action"

The exclusive sectionalized screens in the new Strong-Scott Hammermill assure increased grinding capacities through "vortex grinding action" (see photo upper right).

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Because the screens are flat, they can be subjected to a special hardening process and are guaranteed to wear 10 times longer than ordinary curved screens. This drastically reduces your production costs. The special hardening means the perforations retain their sharper edges and original size longer. This produces a more uniform, quality controlled product at a greater capacity for the entire life of the screens.

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REMOTE CONTROL SCREEN CHANGE—Only the new Strong-Scott Hammermill offers quick-changing up to seven screens from a remote location elsewhere on the floor above. Also, reversible rotation in this Hammermill adds to the long life of the screens.

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Washington Cattleman Builds Own Feed Mill

EPHRATA, WASH.—A new feed mill, with an ultimate capacity of 25 tons of feed ground and mixed daily for 2,500 head of beef cattle, is being completed on the Paul Reynolds farm near here.

Mr. Reynolds is building the plant to serve his own needs in his cattle feeding operation and to provide custom-mixed and ground grain rations for his neighbors in the Columbia Basin. He has done all of the designing and fabrication himself, as well as most of the actual labor on it.

The project was started last March and is near enough completion that most required feed handling jobs can be done now. By using a series of overhead bins and a measuring cart, Mr. Reynolds says he is able to get a high degree of accuracy in his grain and concentrate mixtures. He plans to produce rations tailored to his own individual needs and those of customers.

Mr. Reynolds says he credits the feed milling equipment with improving feedlot performance of one lot of 600 cattle which he had started on feed before he began using the new mill. He also said he was able to mix salt in the ration, increasing the water intake of the animals. This, he said, eliminated a urinary disease which had previously plagued his cattle. Further, he now can add his own antibiotics to ward off sudden disease problems.

The Washington feeder also sees the operation as an outlet for a considerable amount of his neighbors' corn.

Farm Supply Course Reviewed in Bulletin

EAST LANSING, MICH.—Information on an elevator and farm supply short course, being offered by Michigan State University, is contained in the university's publication "College of Agriculture Short Courses."

The bulletin says the course is designed to meet the demand for trained people to serve as feed mill operators, feed and farm supply servicemen, store operators, elevator operators and managers.

Subjects included in the course were chosen specifically for young men interested in a feed and grain career, the publication says. Emphasis in all subjects is placed on the application of the instruction to the feed and grain industry.

According to the bulletin, the course consists of four terms of resident work at the University and two terms of placement training in an elevator or feed mill. The program is 18 months long.

Some of the subjects included in the course are:

- Principles of livestock feeding.
- Elevator and feed industry.
- Agricultural economics.
- College bookkeeping.
- Soils and fertilizers.

Many others are also part of the course, the bulletin says.

Lee Parmenter Heads Des Moines Exchange

DES MOINES—Lee Parmenter, assistant manager of the grain department of the Farmers Grain Dealers Assn. of Iowa, was elected president of the Des Moines Grain Exchange at its recent annual meeting.

Vaden Couch, Bates-Couch Grain Co., was elected vice president of the exchange, and Bob Sargent, Sargent Grain Co., was named secretary-treasurer. Mr. Sargent and Curtis Twedt were newly elected to the board of directors.

Economy is still a household word in America. It means a large-size package.

◆ ◆ ◆

Johnny, who had acquired the habit of using profane language quite extensively, was warned by his mother never to say such words again, or she would pack his clothes and turn him out.

Johnny promised his mother that he wouldn't, but it was not very long until she heard him swear. She immediately packed his clothes and put him out of the house.

The boy stood on the steps for approximately an hour, his mother watching him from the window, and finally she opened the door and asked him why he did not leave.

"I was wondering," he replied, "where the —— I would go."

◆ ◆ ◆

Two candidates for mayor in a small town had waged a heated campaign that had taken on a bitter, personal tone. Even after the election, neither man would speak. On the New Year's eve following the election, both men were invited to the same party. Near midnight the host approached the losing candidate. "Sam," he pleaded, "for the sake of peace in our town, will you please make up with Norton? Just go over and wish him a happy New Year."

After an inward struggle, Sam reluctantly went up to the new mayor. "Norton," he said, "I wish you a happy New Year." Then, drawing a deep breath, he added, "But only one."

◆ ◆ ◆

Three men and a dog were having cocktails in a bar. The dog was on a chair, handling his glass in a fashion even Emily Post would approve.

"That's some dog," commented the bartender. "He's almost human!"

"Brother, you can say that again," said the canine's owner. "Wait till you see him get out of paying for the next round!"

- Stimulates appetite—adds aroma, taste appeal.
- Saves up to $4 ton in dairy feeds as a replacement for other antioxidant and flavor ingredients.
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STANDARD FEED PIPER: unloads by air through flexible steel hose. Has almost unlimited "lift and reach." Handles mash; pellets; flaked, rolled or whole grains. Multiple compartments permit different feeds to be carried in same load without contamination.

SELF-LOADING FEED PIPER: has all features of standard Feed Piper but will in addition draw from bins, rail cars or other storage structures.

CONVERSION UNITS: van, stake or dump body trucks or trailers can be converted to handling by air without sacrificing other uses. Do-It-Yourself Kits available.

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SS-103

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- Vertical Mixers
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- Scalping Shoes
- Special Graders
- Flour Milling Equipment

Integration in the Midwest—Part 1

Feed Men Vary in Their Views on The Development of Integration

Contract farming and integration are expected to increase. But so far the trend has not moved fast in midwestern areas, the author of this article found in extensive visits with feed men

By Al P. Nelson
Feedstuffs Special Writer

EDITOR'S NOTE: Al P. Nelson, a special writer for Feedstuffs, traveled extensively through parts of the Midwest this past summer, asking feed dealers and millers about the development of integration in their areas. In the accompanying article—the first of two articles—Mr. Nelson reports the views of these feed men on whether or how fast more integration and contract farming are likely to come.

If one were to draw definite conclusions about integration from news reports and articles which appear in newspapers, farm magazines, trade publications and even some general circulation magazines, it might appear that integration is a mighty irresistible tide sweeping over the agricultural areas of the nation.

Integration — vertical, horizontal and cooperative—is here and undoubtedly will continue to be an increasingly important factor in the raising and marketing of livestock and poultry. It long has been operating in one form or another in parts of the South, East and West, for example. Now it is showing up to a greater extent in various forms in the Midwest.

It may be that we will have a great deal more integration in livestock and poultry operations—more contract farming, more production according to specifications for a certain market. However, right now it appears to this writer that integration is over-emphasized. It is not moving ahead so rapidly as some persons believe.

The Russian sputniks did not signal the end of our way of life, although our lives have been changed. Similarly, integration may not signify the complete end of agricultural independence. However, integration seems very likely to force producers, processors and marketers—either individually or cooperatively—to produce and market meat, dairy and poultry products more suited to the demands of the present-day consumer.

Meanwhile, there is a great deal of controversy in and out of the feed industry as to how this more specific and greater demand for farm products can and should be met. Should it be initiated and controlled by feed manufacturers? Should it be carried out by farm cooperative groups? Should packers and food processors take a more direct part? Can the efficient, well organized cattle feeder, hog producer or poultry raiser hold his own individually without the integrated groups?

Midwestern Survey

To shed more light on the general situation in the Midwest, I made an extensive trip this past summer through Wisconsin, Minnesota, Iowa, Nebraska, and Illinois. I visited produce companies handling eggs, feed manufacturers, feed stores, custom mill operators and a few hatcheries.

While those men I interviewed agreed that farmers and feed men and packers and other marketers should work together to produce better products to meet the consumers' demands, few of them felt that the bulk of farmers would give up all of their independence of action to accomplish these goals. Some are; some aren't. I found many dealers and farmers who thought there would still be a great deal of room in the future for enterprising individual managers to produce a good profit from an individual livestock or poultry producing operation.

One medium sized eastern Iowa feed manufacturer and custom mill operator sized it up this way: "There's no complete integration as such in this part of Iowa. There's some feed contracting, has been for years. And I hear there's a little integration with egg producers near Independence. But not here."

"Why not?"

"Well, most of my customers are hog and cattle raisers. They're good operators. They don't want and don't need integration. One hog man yesterday told me he sold $4,000 worth of hogs and that $2,000 of it was profit. A fellow like that doesn't want anything to do with integration—at least not yet. Hog and cattle prices have been excellent. My customers are making more money than they have in years."

"What if hog and cattle prices should fall?"

"My customers feel they can weather price drops for a period now. They're good, efficient operators. Of course, some may fail to do so, but generally, most of them still want to stay independent. Things would have to get mighty tough for them before they'd integrate."

In another state — Wisconsin — a dealer selling a lot of hog feed said, "The alert producers are making money on hogs now. They want to keep this business all to themselves. Sure, integration may come, but my customers can't see it right now. And a lot of them think they can operate outside integration—and find markets on a competitive basis. This is a big country, and lots of people need food."

"If the meat-type hog becomes a premium market commodity, will this affect your customers' decision on integration?" I asked. "Will they be able to meet such competition? And are any of them taking steps to produce a meat-type hog?"

"Can Get Along"

The dealer shook his head. "Listen, Mister, the fat type hog has been selling at good prices. Farmers just won't raise any other type so long as the public continues to buy this type. And if the meat-type hog becomes popular, my customers can raise them, too. The integrators won't have a monopoly on such a hog. If the farmer's a good manager he can get along despite integrated competition. There's all the difference in the world between a good farmer and a poor one. And they may have similar setups, too. One makes money—the other goes broke. The answer is good business sense and management. The integrated farmer who passes his financial responsibility on to somebody else may lose some of his managerial initiative."

A well known Iowa feed dealer, located in the heart of the hog pro-

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• EASE OF OPERATION
This custom designed mill has controls arranged to be easily operated from one position. The HELM JUMBO MODEL 100 and JUMBO MODEL 60 can be operated by your untrained men.

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ducing state, laughed when I asked about local integration.

"We've had some feed contracting for years," he said, "but I don't think much of integration."

"Why not?"

"Well, look at it this way: The farmer who is a good manager and who raises livestock and poultry profitably doesn't need integration. He's doing all right by himself right now.

"Then there's the fellow who has his feed contracted. He may not be as good a manager as Type 1 farmer. He's always got financing trouble. He doesn't want complete integration, but he wants his feed contracted, because he hasn't got the money to pay for it as he goes along. However, he must furnish good references, must have good credit, before a reliable feed firm will contract with him.

"What farmers are left for real integration? In my opinion, only the fellows who are poor credit risks, plus those who want to relinquish all their independence."

In my travels throughout the Midwest, I found this viewpoint quite prevalent with feed men who have a large number of hog and beef customers who seem to have no trouble financing their feed and other operations, either themselves or through some loans at local banks.

An Illinois dealer in a hog area said, "The local Chevrolet dealer in town told me he's sold 25% more new Chevs this year than last—most of them to corn or hog farmers. And this in a year when automobile sales are way down nationally. This shows our hog men are making real money and spending it. With an income like this, they don't even want to think of integration."

"And if prices decline?"

"The good producers still think they can stay in business profitably by using efficient methods and good over-all management."

Feed dealers generally, especially the custom millers who do not make their own brands of feed, as well as owners of feed stores, perhaps fear integration. They see a large volume of business taken from them by certain segments of the feed industry if integration ties up a lot of farmers on more or less iron clad contracts.

Many farmers, on the other hand —especially the independent kind— look on integration quite fearlessly. "What some people don't realize," one told me, as I visited with him in a feed store, "is that if this part of the country gets integrated, the integrators are going to be competing with each other for farmers. And with this competition going on, the independent farmer like myself is still going to be able to compete and sell in the general market. I'll take my chances as an independent."

Other farmers point out that some very prominent persons in the college field, such as Prof. N. S. Hadley of Purdue, say that integration may be just a fad. They say that many authorities are doubtful as to the economic efficiency of an integration system whereby alert personal initiative of the producer may be less vigorous than if he were on his own completely.

Those who say that integration may revolutionize agriculture, according to some dealers and farmers, are only partly right. Integration, they feel, will not take over all types of farm management, but it will take over perhaps 20% of it within the next several years. What the integration fever is doing, say some farmers, is to center the attention of farmers and feed men and marketers upon the needs of consumers, and tailoring livestock and poultry products, so to speak, to that demand.

"The poultry industry in the Midwest, especially laying operations, will integrate faster than hogs or cattle," one dealer told me. "There's none of it around here as yet, but I can see where Iowa eggs, for example, need to be geared to a better quality production and marketing program. Perhaps integration will help get this started."

Quite a number of farmers and feed dealers are interested in what is termed "cooperative integration" in the Middle West. Under such a plan, farm cooperatives, or groups of farm producers, organize to raise layers or hogs according to high standards and market cooperatively. In some cases farmers talk of group slaughtering plants in this cooperative integration program.

Such farm integration programs would not be connected with independent feed manufacturing firms or packers and could make their own marketing arrangements with consumer outlets, chains or independents. Thus they would operate in competition for the market with feed manufacturer or packer integration systems.

This promised competition between integrators, say some independent poultry and hog raisers, is going to leave the door open to highly efficient independent raisers to produce and sell, perhaps even to integrators wanting extra business and willing to let some suppliers be without integration rules.

Just about every person I interviewed agreed that the American consumer is calling the tune but, they say, this does not mean that only the integrated farmer can sell products which will satisfy the consumer.

A large enough percentage of American consumers still buy the fat-type hog, as is shown by many of those raised and sold off midwest farms, but this percentage may dwindle as the meat-type hog becomes more popular with consumers. The average midwest farmer is not going to change types of hogs he raises so long as the market holds up and the prices, too. He asks, "Why change?"

Forward-Looking People

The exceptions to the case are those forward looking farmers—and there are some in every state, who try to look into the future, sense the demand for farm products produced at a profit, and then try to channel their operations to the trend of the times. As such, farmers try to adapt to conditions and be ready for market changes, their lax neighbors may also catch fire and do likewise.

Also, as we shall note in the next article, some feed manufacturers, packers and other firms have market programs based on a better type meat hog, higher quality eggs, better quality milk, butter and cheese, etc. These are often integrated programs of some sort.

Promotional work, no matter by whom sponsored, centers attention of consumers, farmers, processors and others upon the desirability of such quality products. Sooner or later, as results are achieved, this will result in more specific buying.

Whether this market will be supplied mainly by integrated firms or integrated producers remains to be seen. In the area in which this writer traveled, you could find "takers" for bets on both sides of the fence.

So, just as space travel is a subject that can liven up almost any scientific or social gathering today, so is integration a subject which can draw farmer, feed dealer, feed salesman and packer into long discussions.

Yes, integration is here. How far will it go? How much of the total market will it account for? How will it affect feed men and present independent producers? These are questions which probably no one can answer completely now. In the next article, the writer will present at least some answers as related to the territory studied.

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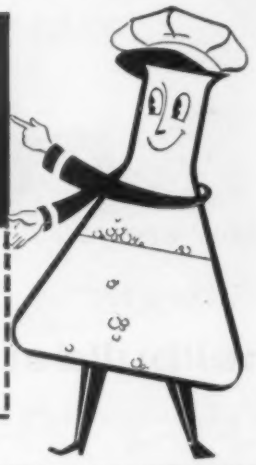

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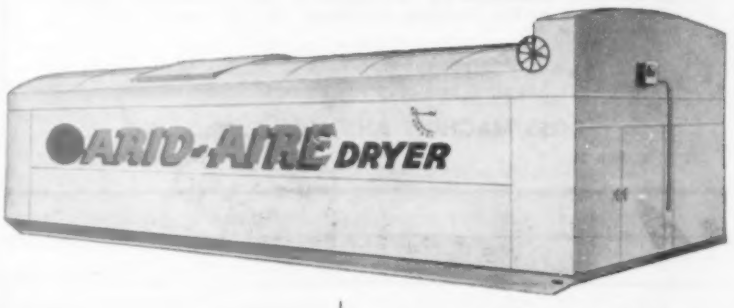

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CONVENTION CALENDAR

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

Oct. 23—Iowa Sheep Day; Iowa State College, Ames; chm., Emmit Haynes, Animal Husbandry Dept., Iowa State College.

Nov. 3-4 — National Swine Industry Conference; Purdue University, Lafayette, Ind.; chm. Keith E. Myers, P.O. Box 241, Grundy Center, Iowa.

Nov. 20—Ohio Grain, Feed & Farm Supply Marketing Conference; Ohio State University, Columbus; chm., Dr. John Sharp, Department of Agricultural Economics.

Nov. 21—Rutgers School for Poultry Servicemen; Rutgers University, Brunswick, N.J.; chm., John Bezpa, Extension Specialist in Poultry Husbandry.

Nov. 28-29—American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., H. H. Stonaker, Animal Husbandry Dept., Colorado State University, Fort Collins, Colo.

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Oct. 12-14—Kentucky Poultry Improvement Assn. and Kentucky Poultry Federation; Kenlake Hotel, Hardin, Kentucky; sec., John W. Tuttle, 730 Rose Street, Lexington, Ky.

Oct. 14-15—Virginia State Poultry Federation; Natural Bridge Hotel, Natural Bridge, Va.; sec., P. Paul Williams, 615 E. Franklin St., Richmond, Va.

Oct. 14-16—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., L. E. Bopst, University of Maryland, College Park, Md.

Oct. 15 — Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 16-17—Michigan Feed & Grain Dealers Assn., Fall Conference; Kellogg Center, Michigan State University, East Lansing; sec., Nevels Pearson, P.O. Box 472, East Lansing, Mich.

Oct. 16-17 — Oklahoma Formula Feed Conference, Oklahoma State University, Stillwater, Okla.; chm., Dr. Rollin H. Thayer, Poultry Science Dept.

Oct. 20-21—California Animal Industry Conference, Fresno Memorial Auditorium, Fresno, Cal.; sponsored by University of California and California Hay, Grain & Feed Dealers Assn.; sec., John Gilmore, 1400 10th St., Sacramento, Cal.

Oct. 23-24—First Annual Poultrymen's Institute; State College of Washington, Pullman, Wash.

Oct. 23-24 — West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis, W. Va.; sec., J. S. Larrick, 408 Prince St., Beckley, W. Va.

Oct. 23-24 — Iowa Seed Dealers Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Oct. 23-25 — Nutrition Conference, Alabama Feed Assn.; Alabama Polytechnic Institute, Auburn, Ala.; chm., Merlin T. Bryant, Brundidge Milling Co., North Main St., Brundidge, Ala.

Oct. 24 — Arkansas Poultry Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville, Ark.; chm., R. M. Smith, Poultry Department.

Oct. 30—Nebraska Formula Feed Conference; University of Nebraska, Lincoln, Neb.; chm., Dr. J. L. Adams, Poultry Husbandry Dept.

Oct. 31 — Nebraska Rooters Day; University of Nebraska, Lincoln, Neb.; chm., Dept. of Animal Husbandry.

Oct. 31—Illinois Sheep Day; University of Illinois, Urbana; chm., Dr. George R. Johnson, Department of Animal Science.

Oct. 31-Nov. 3 — Florida Nutrition Conference; cruise from Miami to Nassau, British West Indies; chm., J. P. Feaster, Department of Animal Husbandry and Nutrition, University of Florida, Gainesville, Fla.

Nov. 2-5 — National Renderers Assn., Hotel Statler, Washington, D.C.; sec., Miss Jamie C. Fox, 30 N. LaSalle St., Chicago 2, Ill.

Nov. 5—North Dakota Swine Day; Shepperd Arena, North Dakota Agricultural College, Fargo, N.D.

Nov. 5—Jersey Chick Assn.; Berkeley-Carteret Hotel, Asbury Park, N.J.; sec., J. C. Taylor, College of Agriculture, New Brunswick, N.J.

Nov. 5-6—Illinois Feed Assn. and Illinois Poultry Improvement Assn.; Armory, Springfield, Ill. (IFA Leland Hotel; sec., Dean M. Clark, Board of Trade, Chicago 4; IPIA, St. Nicholas Hotel; sec., Aubrey Harless, Box 91, Shelbyville, Ill.)

Nov. 7—Illinois Cattle Feeders Day; University of Illinois, Urbana; chm., Dr. George R. Johnson, Department of Animal Science.

Nov. 7 — Washington Animal Industry Conference; Lower Columbia Junior College, Longview, Wash.; sponsored by State College of Washington, Lower Columbia Junior College and Washington State Feed Assn.; assn. mgr., J. G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Nov. 12-14 — Feed Production School; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Nov. 13-14—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Prof. Charles Chance, Wing Hall, Cornell University, Ithaca, N.Y.

Nov. 14—Small Mill Short Course; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn., executive vice presi-

CALENDAR FOR 1958-59

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dent, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Nov. 15—Missouri Sheep Day; University of Missouri, Columbia; chm., C. V. Ross, Animal Husbandry Dept.

Nov. 23-25—Western Grain & Feed Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Nov. 30-Dec. 1 — Tennessee Feed Manufacturers Assn.; Noel Hotel, Nashville, Tenn.; sec., Charles H. Warfield, 602 American Trust Bldg., Nashville 3, Tenn.

Dec. 8-9 — Veterinarian-Nutrition Conference; President Hotel, Kansas City; sponsored by Midwest Feed Manufacturers Assn.; exec. vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City, Mo.

1959

Jan. 5-6 — Kansas Formula Feed Conference; Kansas State College, Manhattan, Kansas; chm., Dr. Tom Avery, Poultry Department.

Jan. 6-7—Elevator Business Managers Clinic, Michigan State University, Kellogg Center, East Lansing, Mich.; chm., Earl H. Brown.

Jan. 6-8—National Turkey Federation Convention and Exposition; Veterans Auditorium, Des Moines, Iowa; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 9-10 — Kansas Seed Dealers Assn.; Hotel Broadview, Wichita; sec., O. E. Case, 609 Wiley Bldg.. Hutchinson, Kansas.

Jan. 11-13—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Fleming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 18-20—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 20-21—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; chm., B. J. Duke, North Dakota Poultry Improvement Board, Bismarck, N.D.

Jan. 26-28 — Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 9-10—Montana Nutrition Con-

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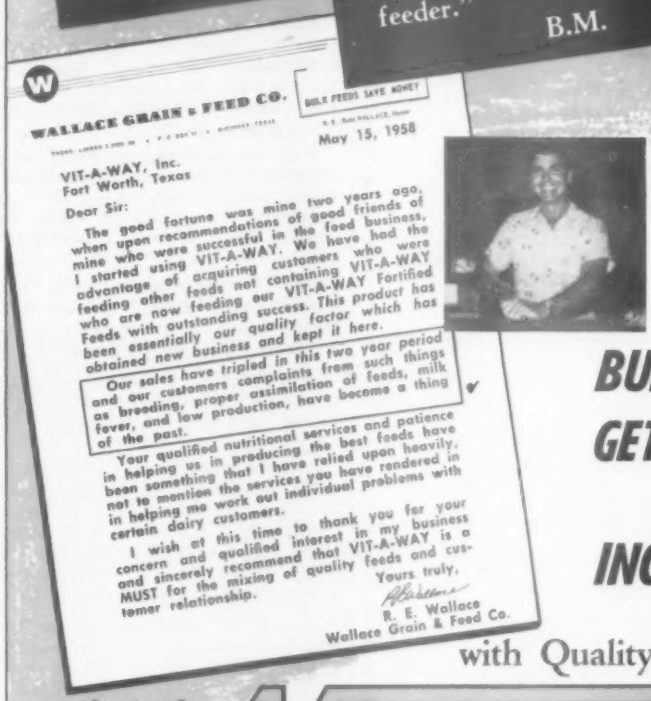
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Our sales have tripled in this two year period and our customers complaints from such things as breeding, proper assimilation of feeds, milk fever, and low production, have become a thing of the past.
Your qualified nutritional services and patience in helping us in producing the best feeds have been something that I have relied upon heavily, not to mention the services you have rendered in in helping me work out individual problems with certain dairy customers.
I wish at this time to thank you for your concern and qualified interest in my business and sincerely recommend that VIT-A-WAY is a MUST for the mixing of quality feeds and customer relationship.
Yours truly,
R. E. Wallace
Wallace Grain & Feed Co.

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GET NEW CUSTOMERS and REPEAT SALES
INCREASE PROFITS

with Quality-Controlled

exclusively patented* processed VIT-A-WAY FORTIFICATION in your feeds

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2. NUTRITIONAL COUNSEL . . .
Our department of research and control is always ready to answer questions and furnish data on "tomorrow's problems today" . . . to help you meet and solve the problems in your own area. This puts you in a better position to serve your customers with the newest developments in scientific and efficient feeding practices.

3. ADVERTISING and MERCHANDISING HELP . . .
Our complete advertising department will assist you in advertising and merchandising programs . . . designed to promote the sale of your feeds. Ad mats . . . folders . . . point of purchase material . . . radio copy . . . inserts and stuffers . . . hand bills . . . and everything you need to build sales and customer demand for your feeds!

4. DIRECT MAIL PROGRAM . . .
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Feb. 11-12 — Feed Mill Production School; Leopold Hotel, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 16-18—Midwest Feed Manufacturers Assn., annual convention, Muehlebach Hotel, Kansas City, executive vice president, Lloyd Larson, 20 West Ninth St., Kansas City, Mo.

Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., Olaf Erickson, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

March 19-20—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. Richard D. Creek, Poultry Husbandry Department, University of Maryland, College Park, Md.

March 25—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

April 12-17—Grain Elevator & Processing Superintendents; Multnomah Hotel, Portland, Ore.; sec., Dean M. Clark, 1120 Board of Trade Bldg., Chicago 4, Ill.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9 — Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

July 10-14 — Georgia Feed Assn.; General Oglethorpe Hotel, Savannah, Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. v. pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Abbott Direct Mail Wins National Award

NORTH CHICAGO, ILL.—Abbott Laboratories, North Chicago, has received the 1958 Gold Mail Box Award for the best direct mail advertising program in American industry during the year ended Aug. 1.

Two other citations were also awarded to Abbott at the annual convention of the Direct Mail Advertising Assn., St. Louis.

The company's product advertising pieces were selected as the best of industry in the all product category, and it also received the best of industry award in the house organ category for its publication for the medical profession. No other company received multiple awards.

The citations were presented at an awards breakfast opening the association's annual convention. Robert F. Beine, creative director in the Abbott advertising department, accepted the awards for his company. Presentations were made by Colin Campbell, chairman of the awards jury and executive vice president of Campbell-Ewald Co., Detroit advertising agency.

Winning advertising campaigns were on display at the convention and will be shown in cities throughout the U.S. and Canada during the coming year.

Opens Oregon Branch

PORTLAND, ORE.—The opening of a local branch to service the Oregon trade is announced by the Stocklin Supply Co., poultry, hatchery and veterinary supplier with headquarters in Seattle. The Portland branch is at 43 S.E. Salmon St. It will be under the direction of Chris J. Holmbren, who will be available for sales and service.

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Virginia Poultry Group Announces Program For Annual Meeting

RICHMOND, VA.—The Virginia State Poultry Federation has announced program plans for its Natural Bridge convention to be held Oct. 14-15. Outlined in the announcement were programs for the commodity organizations within the federation as well as the program for the general sessions.

Group meetings are set to begin at 11 a.m. Oct. 14.

The Virginia Turkey Assn. will hear Alex Gordeuk, general sales manager for Nicholas Turkey Breeding Farms, Sonoma, Cal. He will discuss prospects for the future of the turkey industry, along with trends in production and marketing.

Stephen K. Urner, eastern office manager for the Poultry & Egg National Board, will address the Virginia Egg Council, according to John Hill, Culpeper, council president. His talk will outline egg promotion programs by PENB.

Broiler association members will hear Taylor L. Grizzard, federation field service director. Mr. Grizzard will discuss proposed plans for the Virginia Poultry Expansion Program (PEP) movement, which he directs, as it pertains to broiler growers. He will also review progress to date in the PEP movement.

Elections of officers and directors of all the component organizations of the federation are also scheduled with the exception of the feed association. The latter, which began holding its annual convention in February this year, will hold a business meeting of officers, however.

The Virginia Baby Chick Assn. will hold its annual business meeting at the same time as the other meetings but no speaker is scheduled.

Theme of the convention will be "Cooperate—Compete—and Grow." An effort to give direction to the principle of this theme is planned in the scheduled appearance of some of the nation's outstanding authorities in various phases of the poultry industry.

Idaho Fish Hatcheries Use 90% Pelleted Feed

BOISE, IDAHO—Trout throughout Idaho's fish hatcheries are getting 90% of their rations in the form of pellets, according to the state's Fish & Game Department.

The pellets contain wheat, shorts, alfalfa meal, tomato pulp meal, cottonseed meal, dried skim milk or whey, salt, ground oats, brewers yeast and vitamins.

Speaking of the pelleted fish rations, James C. Simpson, chief of fisheries management, says, "It reduces hatchery labor by eliminating grinding and storing fresh meat. Our fish are more disease free, have a healthy, bright color and are what we consider as top quality."

Other advantages, he says, are ease of storing and a much better supply than lungs and spleen, salmon viscera and horse meat that was formerly used.

Size of pellets vary from about pepper granule size up to one eighth inch in diameter. The size used depends on the size of fish being fed. Six different sizes are available.

250,000-BU. ADDITION

DALHART, TEXAS—The Welch Grain Co. is erecting an all-steel 80-by-140 ft. building at its elevator site in the north part of Dalhart. The building will hold 250,000 bu. of grain, according to Irvin Welch. This will increase the elevator's capacity to 655,000 bu.

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Merchen Scale Feeders, with feed rates from 3 to 3000 pounds per minute, require no adjustment for changes in material density. They are suited for most industrial continuous blending or automatic batching processes. For more information about Merchen Scale Feeders, write for Bulletin M-35.36.

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By Leonard A. Maynard

It covers the standard, constantly-needed facts on feeding farm animals, and also the newly discovered facts about how certain acids, minerals, vitamins, etc., can help in raising healthier, more productive animals.
474 pages, 77 illustrations and tables **$7.50**

BEEF CATTLE, 4th Edition

By Roscoe R. Snapp

Covers breeding, feeds, feeding, economic trends, equipment, etc. Includes a report of hundreds of feeding experiments. Has a special chapter on sterility by Dr. Harry Hardenbrooks, Jr., assistant professor of veterinary medicine, University of Illinois. 641 pages **$6.50**

USE OF ANTIBIOTICS IN AGRICULTURE (1956)

Proceedings of the First National Conference

Held under the Auspices of the Agricultural Board and the Agricultural Research Institute, National Academy of Sciences, National Research Council, Oct. 19-21, 1955. Foreword by L. A. Maynard, chapters are sessions, presided over by C. F. Huffman, Damon Catron, H. D. Branion, J. G. Hornfall and W. W. Spink. A collection of scientific papers and panel discussions by leaders in the field **$2.50**

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Based on the original work by Carl W. Larson and Fred S. Putney. Expanded 10%, the Fourth Edition adds new chapters on minerals and vitamins, and much recent material on hay-crop silage, grass land farming, dairy cattle health programs, and digestion in the rumen and milk secretion. Designed for use profitably by the student and the practicing dairyman. 614 pages..... **$6.50**

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By W. W. Yapp and W. B. Nevens, Agricultural Experiment Station, University of Illinois

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SWINE SCIENCE, 2nd Edition (1957)

By M. E. Ensminger, Ph.D., State College of Washington, Head Department of Animal Science

A complete yet easily understood reference for swine feeders, breeders and those in auxiliary services to them. Covers history and development of the industry, its distribution, adaptation and future; types and breeds, establishing the herd, meat type breeds, selection and judging, breeding, feeding, grains and high energy feeds, protein, vitamin and milling by-product feeds, pastures, buildings and equipment, health and disease prevention, marketing and slaughter, management and showing. 543 pages, 192 illustrations..... **$5.00**

SWINE FEEDING AND NUTRITION (1957)

By T. J. Cunha, Department of Animal Husbandry and Nutrition, University of Florida

A new text for feeders, teachers of animal husbandry and their classes, county agents, nutritionists and workers in veterinary pharmaceuticals. Dr. Cunha is head of the Department of Animal Husbandry, a member of the Nutrition Committee of the American Society of Animal Production and the Swine Nutrient Requirements Committee of the National Research Council. The book includes reports on the most recent scientific feeding studies on swine.
300 pages, 47 tables, 46 illustrations **$5.00**

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By W. E. Carroll and J. L. Krider

A guide to organization, establishment, management, feeding and marketing operations in raising of hogs. 498 pages, 65 illustrations..... **$7.00**

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By George P. Deyoe

A practical swine raiser's handbook. Stock selection, record keeping, feeding, care and handling, marketing techniques and preparing pork for home use. 447 pages, 201 illustrations, 40 tables **$6.95**

THE HANDBOOK OF FEEDSTUFFS (1957)

By Rudolph Seiden and W. H. Pfander

An encyclopedic presentation of production, formulation and medication. Designed to increase feed efficiency, explaining thousands of terms. Valuable to ranches and farms in production of feeds from right crops, utilization of plant as pasture, silage, hay, etc., and as an officially recognized feed product (meal, bran, grit, cake, etc.). Explanations and practical advice on medicated feeds, mineral feedstuffs, trace elements, growth stimulants and chemicals of importance to stockmen and poultry growers. Useful to feed manufacturers, nutritionists, students of animal biology, etc. 600 pages, 175 illustrations, cloth binding **$8.00**

THE STOCKMAN'S HANDBOOK (1956)

By M. E. Ensminger, M.S., M.A., Ph.D.

Intended for stockmen, those who counsel with stockmen and for teachers in animal agriculture. First 120 pages particularly of interest to feed trade, as breeding and feeding of livestock are covered. Other chapters have to do with judging, management, marketing, etc. The 1956 edition is the fourth printing, indicating strong demand for this guide. 596 pages, well illustrated, many tables. A practical handbook **$8.50**

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297 pages, hard binding **$4.00**

THE GRAIN TRADE: How It Works (1956)

By James S. Schonberg, Vice President, Uhlmann Grain Company

A comprehensive book on the mechanics of merchandising and trading in cash and grain futures in the U.S. and Canada. Tells of what happens to grain following its purchase from the farmer, how it is graded, stored and conditioned, the establishing of price even before the crop is planted, the role of the university professor in the grain trade. This authoritative book will become the leading reference book on this subject for farmers, county agents, legislators, foreign buyers, government personnel, teachers, etc. **$6.00**

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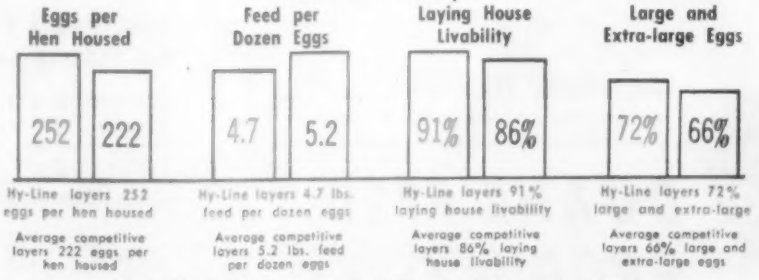
Eggs per Hen Housed
252
222
Hy-Line layers 252 eggs per hen housed
Average competitive layers 222 eggs per hen housed
Feed per Dozen Eggs
4.7
5.2
Hy-Line layers 4.7 lbs. feed per dozen eggs
Average competitive layers 5.2 lbs. feed per dozen eggs
Laying House Livability
91%
86%
Hy-Line layers 91% laying house livability
Average competitive layers 86% laying house livability
Large and Extra-large Eggs
72%
66%
Hy-Line layers 72% large and extra-large
Average competitive layers 66% large and extra-large eggs

Results of 1956-57 Random Sample Tests comparing average Hy-Line 934 Series layers available this year with average competitive entries.

ARKANSAS FEED CONFERENCE—One of the features of the recent Arkansas Formula Feed Conference held at the University of Arkansas was a chicken barbecue. Some scenes at the barbecue are shown. In the first picture Ted Darragh, Darragh Co., Little Rock, presents a door prize to Rex Lawman, Central Bag Co., Ft. Smith, Ark. Waiting for the program to start (second picture) are Elmer Modeer, Staley Milling Co.; Russell May, Quisenberry Mills, Inc., and Bradley Barr, M. A. McClelland Co., all of Kansas City. Chatting while finishing off the chicken (third picture) are William C. Boyd, Vit-A-Way, Inc., Springfield, Mo.; Harold Warthoe, Borden Co., Ft. Worth, and Jim Robinson, Wenger Mixer Manufacturing Co., Fayetteville, Ark. In the last picture, talking over industry problems, are Dalton E. Gandy, National Cottonseed Assn., Ruston, La.; Dr. O. T. Stallcup, University of Arkansas, and Rush McCarty, Grand River chemical division of Deere & Co., Shreveport, La.

Heavy Cattle Feeding Trend Reported Among Western Meat Packing Firms

SAN FRANCISCO, CAL.—Indications in this part of the nation are that more and more meat packers are getting into the cattle feeding end of the meat business. Statistics show that there is more packer feeding done in the West than in any other part of the country, according to spokesmen here.

Until recently, the only feeding done by most packers was on a short term basis—just enough to keep cattle for a few days or weeks before slaughter. Now, the trend seems to be toward more long term feeding similar to commercial feedlot operations. Most packer feedlots handle a few thousand head, but there are some packers on the West Coast operating feedlots of 10,000 head capacity or more. Some of these packer feeders also finish cattle for other packers, either for direct sales or on consignment.

An example of a fairly large long-term packer-feeder operation is the one at Woodland, Cal., opened about 2½ years ago by the W. S. Marks Meat Co. The Marks feed lot handles 5,000 cattle at peak seasons and the finished cattle are slaughtered by the Marks firm and sold to other buyers as well.

One of the reasons for such an operation is given by Bill Marks. He states that a packer with a feed lot can ensure himself a steady supply of exactly the kind of finished beef he and his customers want, be it low choice, top good or whatever grade is wanted by the majority of the distributing trade.

Pacific Dairy, Poultry Group Sets Meeting

CORONADO, CAL.—Problems of processing, distribution, marketing, transportation and interstate trade barriers as they affect the dairy and poultry industries will be discussed at the annual convention of the Pacific Dairy & Poultry Assn. here April 2-4.

Carl Nall, Los Angeles, association secretary, said the convention will feature sub-panels on cheese, shell eggs, poultry, butter and turkey. The three-day session will be held at the Hotel del Coronado.

ENTERS FEED BUSINESS

LEBANON, ORE. — A Silverton, Ore., man has purchased part interest in the Valley Seed & Feed Store in Lebanon. Charles Cross, who formerly operated a greenhouse and nursery at Silverton, has purchased the interests of Mrs. Jack Owens, Salem. Mr. Cross will be in partnership with his brother-in-law, Robert Heimerdinger, who with his mother, Mrs. Florence Heimerdinger, and Mrs. Owens, have owned the concern since the death of the elder Heimerdinger.

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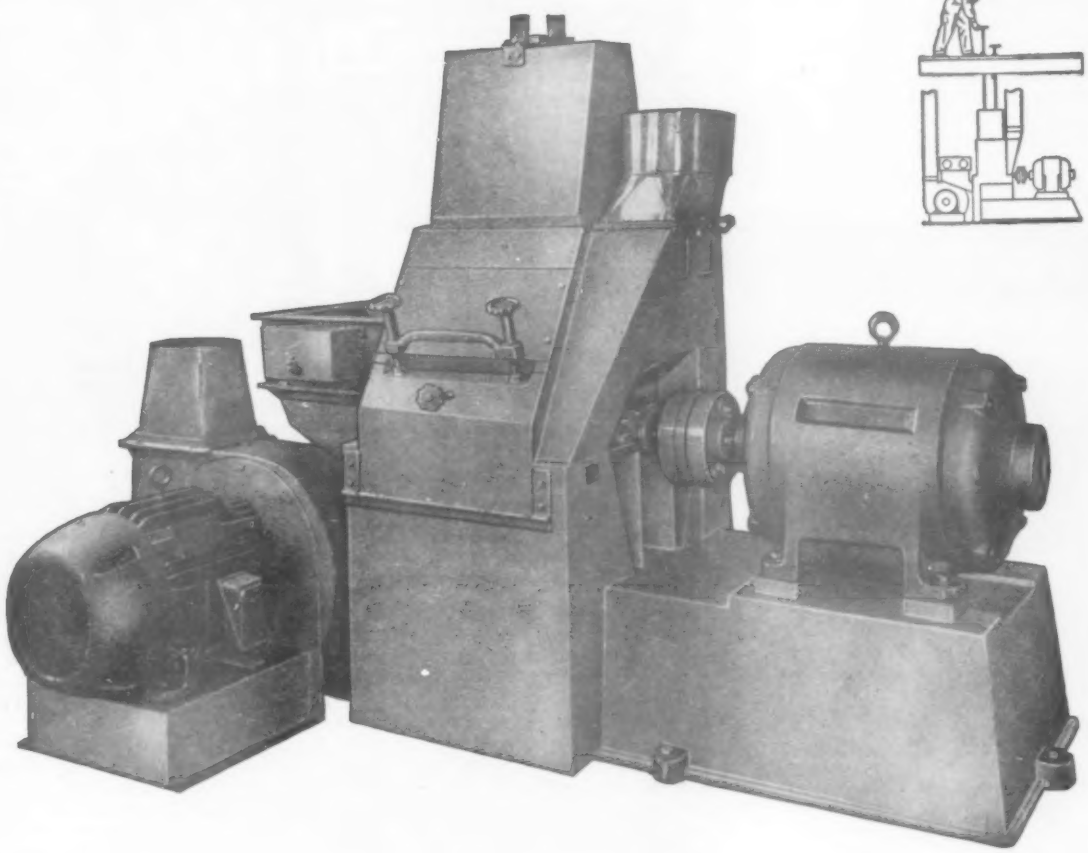

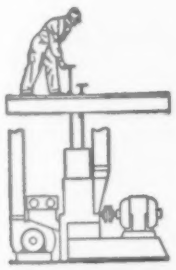

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Use of Fats and Oils in Formula Feeds Tripled Since 1954, USDA Reports

WASHINGTON — Fats and oils used in mixed feeds during 1957-58 is almost triple the amount used in 1954-55, according to the September Feed Situation Report of the U.S. Department of Agriculture.

The report said that on the basis of monthly data on the use of fats and oils in mixed feeds "it seems probable that the mixed feed industry is using around 250,000 tons of fats and oils in the 1957-58 feeding year."

A special industry-wide survey made in 1956 by the Agricultural Marketing Service showed use of about 162,000 tons of fats and oils in mixed feeds for that year. (Feedstuffs, page 28, July 19, 1958). That amount was double the use in 1954.

The cost of fats and oils relative to other sources of energy is an important factor in the demand for these ingredients. Before World War II, fats were generally priced much higher than carbohydrates, such as corn; little consideration was given to them as a feed ingredient.

But after the war, fat prices began to drop as purchases for soap decreased and livestock slaughter increased. During the survey year 1956, inedible tallow and grease accounted for about 92% of the fats and oils used in mixed feeds.

Tallow vs. Cornmeal

Productive energy of tallow has been reported at 5,756,000 calories per ton, or approximately 2.6 times as great as that of cornmeal. Table I shows the comparative cost of prime inedible tallow and cornmeal. The price of tallow is reported for that quantity having the same productive energy as ground corn (or cornmeal) processed from a bushel of corn.

TABLE 1. Costs of Tallow and Cornmeal on the Same Productive Energy Basis

Year beginning October	Tallow: Price per pound* cents	Tallow: Price on a corn energy per bushel basis dollars	Corn price per bushel† dollars	Cornmeal from a bushel of corn‡ dollars
1953	6.2	1.39	1.56	1.64
1954	7.0	1.51	1.49	1.57
1955	6.9	1.48	1.35	1.43
1956	7.1	1.53	1.34	1.42
1957—				
October-December	8.0	1.72	1.20	1.28
January-March	7.6	1.64	1.16	1.24
April-June	7.4	1.60	1.34	1.42
July	7.6	1.64	1.36	1.44
August	7.6	1.64	1.35	1.43

*Inedible tallow prime, tanks, Chicago.
†No. 2 yellow corn, Chicago.
‡An allowance of 8c per bushel is made for grinding costs.

The price of ground corn is based on the price of No. 2 yellow corn because wholesale prices are not reported for cornmeal. An allowance of 8¢ bu. has been added to the cost of the corn to provide for grinding costs. The composition and digestible nutrients of this grade of corn are assumed to be about equivalent to cornmeal.

Such a comparison indicates that tallow has become more expensive relative to cornmeal since 1953-54, and while the price of cornmeal has declined in recent years, the price of tallow has been maintained at a level above the 1953-54 average.

Premium for Fats

Continued expansion in the use of fats and oils appears to indicate that feed mixers are finding it worthwhile to pay a premium for animal fats above their value as a supplier of productive energy, USDA said. The relatively higher price for fats, however, may be discouraging to their use in prepared feeds in such proportions as to make them a major source of energy in the ration, the report said.

"Should the industry consume an estimated 250,000 tons of fats during 1957-58, the productive energy of the total would be the equivalent of approximately 23 million bushels of corn," the report said. "The trend toward use of fats is expected to continue—increasing livestock production and slaughter will give an upward trend in production, while declining fat consumption by the major fat consumers is anticipated.

The report said that in the long run, use of fats and oils in feeds will be tied to the price of fats for feeding relative to the prices of carbohydrates, development of new formulas based on nutritional research and the relative importance of those feeds which make the greatest use of these ingredients.

Cornell Feed Dealer Conference Dates Set

JAMESTOWN, N.Y.—Problems feed dealers and farmers are facing this fall will be discussed at two Cornell Feed Dealer conferences scheduled Oct. 13-14 at Ellicottville and Batavia, N.Y.

The meetings, sponsored by the Mutual Millers & Feed Dealers Assn. of New York and presented by Cornell University staff members, are designed to bring the college to the feed dealers, an association announcement said. Dinner will be served at both meetings.

The Oct. 13 meeting, to be held at the Holiday Inn in Ellicottville, will begin at 1 p.m. Scheduled for the meeting are discussions on feeding problems this fall, the economics of grinding and mixing feed, how to construct bulk feed bins, the future of the poultry industry in New York State and the future of the dairy industry in New York State.

Scheduled for the Oct. 14 meeting at Batavia are discussions of the future of the poultry industry in New York, the place of roughage in a dairy feeding program, all-mash feed for poultry, trends in dairy farming, swine feeding and its effect on grain and public problems in agriculture. The Oct. 14 meeting will get under way at 1:15 p.m.

Plans for the conferences were announced in a recent issue of Mutual Millers Grists, publication of the association. The publication also announced that the winter convention of the association will be held March 4, 1959, at the Statler-Hilton Hotel in Buffalo.

ROY L. WARD RETIRES

CINCINNATI — Roy L. Ward, president and general manager of J. Chas. McCullough Seed Co., has retired after 46 years with the firm. He was succeeded as president by H. Trimble McCullough, former board chairman. Oscar G. Sappington, former general sales manager, was elected first vice president and appointed general manager.

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FOR SALE—ENCLOSED MOTORS; RICHardson Scales; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — ALFALFA DEHYDRATING plant. Heil equipment. Address Ad No. 4155, Feedstuffs, Minneapolis 40, Minn.

CHAMPION MOBILE GRINDER AND mixer units. Champion Portable Mill Co., 2105 Como Ave., Minneapolis 14, Minn.

ONE 7 FT. FOX ALFALFA CHOPPER with 7 ft. Jones cutting head, 1953 model. Good shape. Albion Alfalfa Mills, Inc., Albion, Neb.

PNEUMATIC "AIR-CONVEYOR" SYSTEMS —Positive Pressure blowers, new or used. Any size, capacity, distance of product. Nolder Co., Box 14, Corona Del Mar, Cal.

FOR SALE — 36" FORD HAMMER MILL with 200 H.P., G.M.C. diesel motor mounted on Ford truck. Art Larsen, 342 Sunset Drive, Longmont, Colo.; Phone Prospect 6-3020.

THREE USED "JAY BEE" PORTABLE hammermills with molasses mixer units, drag feeders, collectors and sackers, powered by Waukesha engines, mounted on two-ton Ford and Chev. trucks, ready for operation. Excellent condition. Kunkel Mill Service, 11715 Drury, Kansas City 34, Mo.

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24-TON MOLASSES TANK, STEEL LEGS. Very good condition. With 4-inch valve. Robert A. Ross, 809 Clay St., Watertown, Wis.

SALE — ALUMINUM TANKS, 7,000 GAL., 4,000 gal; spiral ribbon mixers, 336, 200, 75 cu. ft.; dewatering presses, Davenport No. 1A, No. 2A, No. 3A; Louisville 8-roll 36"; six Louisville Rotary Steam Tube Dryers 6'x50', 6'x30', 6'x25'. Perry, 1403 North 6th St., Philadelphia 22, Pa.

FOR SALE — BLUE STREAK 7AC MILL for 100 H.P. motor. C-5 Corn cutter and grader with 5 H.P. motor. Burton ton mixer with enclosed motor and switch, leg and drive. Ton size vertical Kelly Duplex mixer with floor level hopper and 5 H.P. motor, starter and drive. Ton vertical Sprout-Waldron mixer with 5 H.P. motor, floor hopper and drive. Equipment priced to move. Phone or write Wadington Feed Mill Supplies, 2300 Fourth Ave. S.E., Cedar Rapids, Iowa.

SITUATIONS WANTED

TERRITORY-MANAGER—7 YEARS' FEED and seed—wholesale—sales, B.S. in Ag. Seeking better opportunity, Colorado preferred. Address Ad No. 4164, Feedstuffs, Minneapolis 40, Minn.

MACHINERY INSTALLER OR FACTORY service man, 15 years' experience in welding; machine work and millwrighting. Have hand tools and car. Will travel or relocate. Robert A. Ross, 809 Clay St., Watertown, Wis.; Phone 2606.

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MANAGER OR ASSISTANT MANAGER— Experienced in feed manufacturing, retailing, grain handling, farm and college business administration background. 34 years old. Will relocate. Address Ad No. 4157, Feedstuffs, Minneapolis 40, Minn.

YOUNG MAN (30) WITH BROAD BACKground and experience in agricultural field desires responsible position. B.S. in Ag., experienced in retail and wholesale farm supplies, selling, buying, feed formulation, management. Limited traveling. Address Ad No. 4158, Feedstuffs, Minneapolis 40, Minn.

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MIDWEST FEED MANUFACTURER HAS opening for experienced sales manager. Salary open. Address Ad No. 4142, Feedstuffs, Minneapolis 40, Minn.

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ARE YOU A TOP DISTRICT SALES MANager or top supervisor and ready to step up, then it will pay you to contact us for a top position, top salary, company benefits, etc. Contact at once, Loret Mills, Division Seed-Feed Supply Co., Inc., Chattanooga, Tenn. All replies confidential.

FEED SALESMAN WANTED FOR PROVEN area—central Illinois—we have a man retiring and need a replacement. The territory is well established and company well known. Commission rate excellent—pay is superior—contact us now. Address Ad No. 3934, Feedstuffs, Minneapolis 40, Minn.

SALES REPRESENTATIVE—FOR SOUTHwestern Mississippi by one of the South's leading feed concerns. Must be experienced and able to supply top references. Knowledge of broiler and hen operations necessary. All replies will be held strictly confidential. Address Ad No. 4171, Feedstuffs, Minneapolis 40, Minn.

POULTRY SPECIALIST WANTED—A MAN qualified and experienced in feed sales with knowledge of poultry management and poultry diseases. One that can be responsible for finance funds for poultry projects. Good personality. College graduate. Car furnished, plus expenses away from home. Good working conditions. Excellent salary. Reply with resume to Ad No. 4151, Feedstuffs, Minneapolis 40, Minn.

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ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 2, Md.

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FACILITIES

(Continued from page 11)

filling and weighing are automatic, he explains, with the operator holding a bag under the filling spout and the weight of the feed dropping the bag to the conveyor belt. The speed can be set for automatic operation, and the unit also can be operated manually if desired. A Union Special sewing head is used. The Kent feeds are packaged largely in 50-lb. papers, with some 100-lb. burlaps used.

At present, some 15% of the output is in bulk, with the percentage increasing. The I. & C. Bagger also is used for filling the one-ton portable bins in which bulk feeds are handled. The counter is set for 40 fifty-pound discharges, and a bulk bin is then automatically filled with one ton of feed. The bagger, on tubular legs, is installed 3 ft. higher than normal so that a fork truck can move the bulk "tubs" beneath the discharge spout. The bag-off spout is removable to facilitate loading the bulk bins. Also, while the packer is stationary, the sewing machine and conveyor are elevated and on a framework with casters so that they can be moved away when tubs are to be filled. The bagger operator also stands on an elevated platform when filling bags.

The use of the portable bulk bins was instituted several years ago by C. E. Swick at Kent's Muscatine plant, and this same system was adopted at Sioux City. The bins at Sioux City are steel hopper-bottom tubs with a slide gate. The bins, moved by fork truck, are either stored in the warehouse or taken directly to a dock and discharged into waiting trucks.

Clark forklift trucks are used to transport the bulk bins and the bagged feed, on 4 by 4½ ft. steel pallets. Sacked feeds are palletized directly as the bags come off the elevated belt from the bagger and sewing machine. The bagged feeds go onto trucks at a covered loading dock.

The entire plant operation—a compact arrangement, with direct production and handling, pushbutton proportioning, and high-speed, automatic equipment—assures an efficient and economical operation, Mr. Flynn points out. The feed handling and processing, from ingredient unloading to loading out of finished feed, are done with approximately 1 manhour per ton of finished feed.

Quality Control

Quality control throughout the entire operation is emphasized, too, Mr. Flynn notes. The mill has a full-time quality control man who checks such things as bag weights and pellet and granule quality and does the ingredient and finished feed sampling.

An increase in bulk concentrates for local grinding and mixing as well as bulk complete feeds and supplements was noted by Mr. Gregersen. A good share of the Kent dealers served by the Sioux City plant have milling facilities. A number of them now have pelleting equipment, too.

Sales of feed from the new mill are the responsibility of Mr. Daniels and his staff of salesmen. In this connection he points out that all of them are qualified in livestock and poultry service work and other ser-

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One—Richardson Auto Grain bagging scale, 3 bu., new	750.00
One—Richardson Auto Scale for expeller cake with belt agitator and scraper—4 weighings per min. of 250 lb.	1,500.00
One—Scale same as above only 300 lb. per min.	1,800.00
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One—S. Howes Horizontal Mixer, 1,500 lb. cap., 5 H.P. TEFC motor	850.00

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If you are considering decentralization, you should investigate this. Principals only, please. Address Ad No. 4147, Feedstuffs, Minneapolis 40, Minn.

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FEEDSTUFFS

Hopper-bottom steel bins, moved by forklift truck, are used for storing and handling bulk feed. Here, a bin is being emptied into a dealer's truck. The bins have slide gates. They are filled with the high-speed bagging unit in the mill.

vice in aiding dealers in this age of more complex feeds and feeding problems. One special program which he mentioned is assistance to junior feeders, with extra emphasis on club calf fitting and grooming schools and other projects.

Noting the importance of help for dealers, Mr. Daniels went on to mention such things as aid in conducting feeder meetings, dealer training schools, the "Kent Kollege of Feed Knowledge" held periodically in Muscatine, regional appreciation meetings for dealers, sales clinics, and advertising aids. Another special program which he cited is help for dealers in holding open houses, at which refreshments are served and premiums offered.

Speaking of advertising, Mr. Daniels said their experience has been that television is a very effective medium, supplementing radio, direct mail and local advertising programs.

But, he adds, whatever the sales effort, it helps a good deal, too, to have a modern plant turning out modern feeds accurately and efficiently with a minimum of labor cost.

Idaho Forms Poultry Industry Federation

McCALL, IDAHO—An Idaho Poultry Industry Federation has been formed to coordinate all poultry interests so that the industry in the state will be more profitable to the individual, to group development and to Idaho, according to Robert Black, extension poultryman at the University of Idaho and secretary of the new group.

The federation was formed at a meeting held here by hatcherymen, feed dealers, egg and broiler producers, poultry processors, poultry breeders and equipment firms.

Mill Workers' Salaries

SAN FRANCISCO — Production workers in grain mill firms increased their average weekly earnings in California from an estimated $99.36 to $104.88 between July and August, reports the division of labor statistics and research. This was the first time the average was over $100.

The gain is reflected in part by an increase in average hourly earnings and lengthening of the work week during the month. Production workers earned $2.36 per hour in July, as compared with $2.41 in August, and they worked an average of 42.1 hours and 43.8 hours, respectively.

BUYS STORAGE FACILITIES

HEPPNER, ORE.—Morrow County Grain Growers, Inc., recently purchased grain storage facilities here from Interior Warehouse Co., a Balfour, Guthrie & Co. subsidiary. The newly acquired facilities give the association a total storage capacity of 3¼ million bushels, making it the second largest country storage operation in Oregon.

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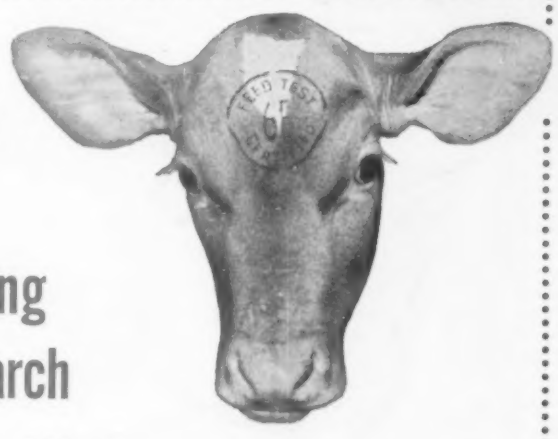

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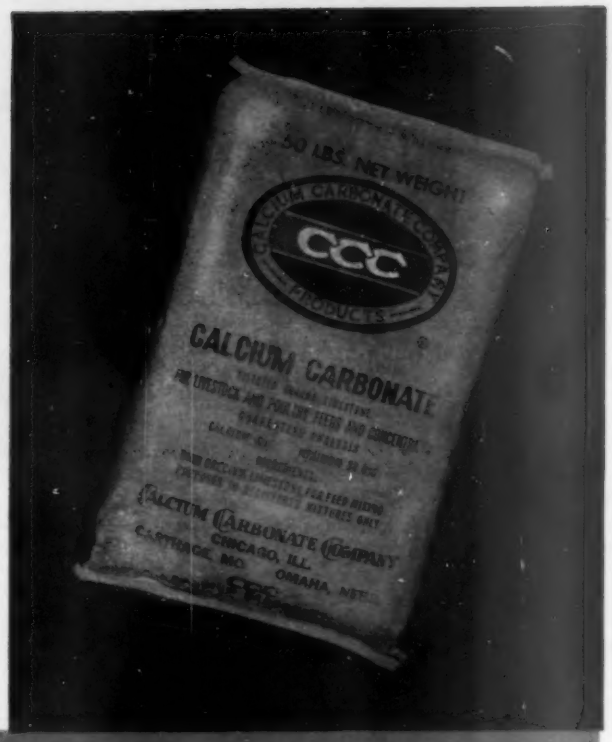

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* Feed manufacturers are adjusting their formulations in view of modern nutritional developments. For instance, the growth rate of chickens is twice what it was ten years ago. The proper balancing of feed is becoming ever more important, and to balance feed accurately requires that the components be of a constant high quality . . . The Calcium Carbonate Company with its laboratory facilities and deposits of Calcium Carbonate of constant high purity offers feed manufacturers the best possible source of calcium for making feeds of highest nutritional value for all farm animals.

SCHOOL

(Continued from page 1)

Details of the production school program were announced this week by the school planning committee, headed by J. D. (Don) Johnson, General Mills, Inc., Minneapolis.

In this connection, Mr. Johnson pointed out that Richard Muther & Associates, engineering consultant of Kansas City, has completed its third field research project undertaken by the Midwest association. Results of the research—exploring costs and efficiencies of various methods used by bulk feed plants—will be presented at the school. Three primary areas of bulk handling were investigated: direct from mixers; through packer bins, and from holding bins. Answers to questions about the bulk methods employed in the installations studied will be presented under six categories: reason for installation; capital investment; capacity of system; deficiencies and limitations; operating costs, and maintenance of product quality.

Demonstrations Planned

Mr. Johnson noted that, to demonstrate the bulk methods described, actual bulk handling machinery, trucks and farm equipment will be in operation at the school. These demonstrations, he said, have been made possible through the cooperation of 40 machinery manufacturers.

"This will give enrollees an unparalleled opportunity for obtaining the complete bulk picture—both theory and practice—during the 1958 Feed Production School," Mr. Johnson said.

Experts from feed, equipment and other companies will be on the program at the three-day school. Following is an outline of the three-day program:

WEDNESDAY, NOV. 12: Results of the bulk handling research and discussions of various aspects of bulk handling will be presented. Talks and other features include—

Welcoming Address—Hugh Kelley, honorary president of the Midwest association, Ames (Iowa) Reliable Products Co.

What We Learned Last Year—Larry Alley, Pay Way Feed Mills, Kansas City.

Another Step Forward—J. D. Johnson, chairman of the production school committee.

Principles of Materials Handling—Bulk Handling of Finished Feeds—Richard Muther, Richard Muther & Associates, Kansas City.

Survey of Existing Bulk Handling Methods—Cliff James, Richard Muther & Associates, Kansas City.

Operating Economics of Bulk Handling—Calvin Hunzeker, O. A. Cooper Co., Beatrice, Neb.

Capital Investment Requirements—Bulk Handling of Finished Feeds—Henry Heckman, Jones-Hettelsater Construction Co., Kansas City.

Designing the Distribution System—R. R. Clark II, The Quaker Oats Co., Chicago.

"Buried in Bulk"—a skit showing typical bulk handling problems, to be presented in the evening following the production school dinner.

Bulk Handling Accessories Session.

THURSDAY, NOV. 13—Various problems in bulk handling will come in for discussion, and there will be other presentations. The Thursday program includes—

Contamination — J. D. Johnson, General Mills, Inc., Minneapolis.

Fines—Weights and Shrinkage—R. F. McLeod, Wirthmore Feeds, Inc., Boston.

Product Identification — Forest Lipscomb, Jr., Lipscomb Grain & Seed Co., Springfield, Mo.

Product Flow—Paul Berg, professional engineer, Ft. Wayne, Ind.

Bulk Handling Finished Feeds—Tomorrow's Solution and System—developed by Eric Carlson, Ralston Purina Co.; the moderator, Loren Burns, Mel Miller & Co., Kansas City.

FRIDAY, NOV. 14—There will be specialized sessions on various production problems, running concurrently and repeated throughout so that all enrollees may attend. Panel members will talk and answer feed men's questions on the various subjects:

Liquids—Handling and Mixing—Dr. Otto Hill (chairman), Washington Co-op Farmers Assn., Seattle; Robert Ambler, Ambler Milling Co., San Gabriel, Cal.; Will Brooks, Illinois Farm Supply Co., Springfield, Ill.; Richard Lucas, Walnut Grove Products Co., Inc., Atlantic, Iowa.

Micro-ingredients — Premixing and Mixing—Maxwell L. Cooley (chairman), Hoffman-Taff, Inc., Springfield, Mo.; Dr. W. J. Monson (premixes), The Borden Co., Elgin, Ill.; James G. Pierce (practical approach for the small mill), Walnut Grove Products Co., Atlantic, Iowa; Harry J. Konen (purchased vs. complete), feed consultant, Houston, Texas; Dr. Walter Glista (use of solution), Wirthmore Feeds, Inc., Boston.

Maintenance Cost Control — J. D. Johnson (chairman), General Mills, Inc., Minneapolis; Ralph Gray, Ralston Purina Co., Kansas City; Roland Nichols, Eastern States Farmers Exchange, Huron, Ohio; Walter Stohrer, Allied Mills, Inc., Chicago.

Remodeling the Feed Mill — John Heimovics (chairman), Jones-Hettelsater Construction Co., Kansas City; Edward Brackney, Jones-Hettelsater; John Wright, Ralston Purina Co., St. Louis; John Branch, Nutrena Mills, Inc., Kansas City; Kim Worthington, Allied Mills, Inc., Peoria, Ill.

Pelleting — Oak B. Smith (chairman) Wenger Mixer Mfg. Co., Kansas City; Merle Williams, McMillen Feed Mills, Decatur, Ind.; Jerry Vaughn, Honeggers' & Co., Fairbury, Ill.

Humanics and Automation—Thomas Lawrence, Lawrence-Leiter & Co., Kansas City, will address the dinner meeting on "Human Relations."

(It is pointed out that enrollees also may attend any of the special Small Mill Short Course sessions being held the same day in the main arena of the American Royal Bldg.)

Machinery: All machinery shown in conjunction with the school sessions will remain on display in the American Royal Bldg. over Saturday, Nov. 15, for enrollees and visitors to see.

Enrollment: Information on enrollment for the complete school or the Small Mill Short Course may be obtained from the Midwest Feed Manufacturers Assn., 20 W. 9th St. Bldg., Kansas City, Mo.

BULK HANDLING RESEARCH—This picture shows Richard Muther (right) of Richard Muther & Associates, Kansas City, presenting the final draft of the 1958 Feed Production School research project, "Bulk Handling Research Study," to J. D. Johnson (left) of General Mills, Inc., Minneapolis, chairman of the 1958 school, and Eric Carlson, Ralston Purina Co., St. Louis, the program chairman, for approval. The research results will be presented at the production school to be held Nov. 12-14 at the American Royal Bldg. in Kansas City. The school is sponsored by the Midwest Feed Manufacturers Assn.

FIRE DESTROYS ELEVATOR

KOKOMO, IND.—Firemen from six departments brought under control a grain elevator fire that threatened the business district of nearby Galveston recently. Destroyed in the blaze was the Bahler Grain Co.

MAINE

(Continued from page 1)

in the opinion of the association.

Involved in the project would be the construction of terminal and storage facilities in one or more ports in the central coastal area, and it would also require the construction of substantial additional milling capacity in the state.

In addition to the 300,000 tons used by the broiler industry, approximately 300,000 tons are used in other poultry feeds and in the dairy industry. All of these tonnages currently are moving into the state by rail.

Irving Isaacson, secretary and counsel for the association, said Dr. Hendel will act as consultant for all phases of the proposed operation. Dr. Hendel was associated with Cargill, Inc., Minneapolis, 34 years prior to his retirement in 1955 as vice president. Since his retirement, he has acted as consultant for the U.S. government and various private interests in the agricultural-business field.

Members of the association sponsoring the project are Penobscot Poultry Co. and Maplewood Poultry Co., Belfast; Hillcrest Poultry Co., Lewiston; Lipman Poultry Co., Augusta; C.M.T. Co., Winslow; Rockland (Maine) Poultry Co., and Newport (Maine) Poultry Co.

DELMARVA

(Continued from page 1)

other grain products than the Delmarva Peninsula can get because the products are being moved down the Mississippi and up the Tennessee River with a savings in transportation cost.

Sen. Williams disclosed that he has talked to business and civic leaders in lower Delaware about the use of the Lewes area, and has found them enthusiastic.

"The natural deep water channel of the Delaware River runs close to the shores of Delaware, giving us a decided advantage in attracting new industry needing water facilities for transportation. This advantage has been recognized by the many new industries which have in recent years announced plans to locate in the state," he concluded.

Boat Trip Cancelled

CHICAGO—The all-day boat trip planned for the Chicago chapter of the Grain Elevator & Processing Superintendents, originally scheduled for Oct. 25, has been cancelled.

Plans for a substitute program are being arranged, and an announcement will be made soon, according to a chapter spokesman.

SMALL MILL

(Continued from page 1)

Both events will take place in the American Royal Bldg. under the sponsorship of the Midwest Feed Manufacturers Assn.

Feed men may register for the one-day short course only, or they may register for the three-day production school and attend either the short course sessions or other specialized sessions of the school on Nov. 14. While planned especially for operators of smaller mills, the short course sessions in the main arena of the American Royal Bldg. are open to all production school enrollees.

The program for the short course was announced this week by the chairman, T. E. Stivers of T. E. Stivers Co., milling engineer, Decatur, Ga. Talks, discussions, demonstrations with actual equipment and question-and-answer sessions will cover the various phases of operation in small mills.

Experts from feed, machinery and construction firms will be on the program.

Following are small mill short course topics and program participants:

Receiving, Storage and Preparation of Ingredients—Eldon Roddis, Roddis Feed Co., Rochester, Minn., and Duane Tyler, Reid-Strutt Co., Portland, Ore. This session will cover such things as bag and bulk receiving by bucket elevator, auger and air; grinding, cutting, crimping, handling and sorting over mixer, weighing to mixer.

Mixing — G. A. Carlson, Strong-Scott Mfg. Co., Minneapolis, and Wesley Lehman, McMillen Feed Mills, Ft. Wayne, Ind. Information will be presented on horizontal, vertical and continuous systems; mixing times; ways to check mixing efficiency.

Packing, Storing and Shipping—Robert Brunson, Pillsbury Co., Clinton, Iowa, and Howard Johnson, Richardson Scale Co., Atlanta, Ga. Such things as bagging equipment, mill bins and bulk bins to truck will be discussed.

Specialties—F. D. Allen, equipment department, Archer-Daniels-Midland Co., Kansas City, and J. W. Sloan, Cosby-Hodges Milling Co., Birmingham, Ala. These men will deal with pelleting, dust collection and air handling, smoking and fire prevention, mill maintenance, housekeeping, electrical equipment, etc.

Typical Mill Layouts—Tom Ibberson, T. E. Ibberson Co., Minneapolis, and Vernon Hayes, Hayes & Stolz, Ft. Worth. Feed men will hear discussions of typical layouts, costs and plans (with slides and exhibits)—general purpose mills, poultry feed mills, package custom mills.

"What The Customer Expects"—O. C. Zwackhammer, Manley Farms, Inc., Tarkio, Mo. A feeder will tell the feed men what he expects from the mill operator.

Answer Panel—The entire short course faculty, with the session moderated by Mr. Stivers, will answer questions previously submitted and also questions asked from the floor.

Mr. Stivers also pointed out that all machinery shown in conjunction with production school sessions will remain on display in the American Royal Bldg. on Saturday, Nov. 15, for enrollees and visitors.

Information on the short course as well as the complete production school may be obtained from the Midwest Feed Manufacturers Assn., 20 W. 9th St. Bldg., Kansas City, Mo.

ADDS TO ELEVATOR

DENVER—Construction is under way on a $300,000 addition to Farmers Union Marketing Assn. existing grain elevator at 4410 Madison St. here.

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand slow; supply good; 400 D, 3,000 A 20¢ lb.; 300 D, 3,000 A 19½¢; 600 D, 1,500 A 17½¢; 300 D, 1,500 A 16½¢; 300 D, 2,250 A 18¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

Denver: Demand nominal; supply good; trend nominal; 22¢ drum lots.

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13⅛@15⅛¢, 1,500 A 15⅛@17¢, 2,250 A 17⅛@20¢, 3,000 A 19⅛@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19⅛¢; f.o.b. Massachusetts, New York or Pennsylvania.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

ALFALFA MEAL

Portland: Demand steady; supply ample; trend unchanged to higher; suncured, 15% $39; dehydrated $68.

Los Angeles: Demand slow; trend unchanged; supply adequate; dehydrated meal, 17% protein, 100,000 A $47@48 bulk; dehydrated pellet meal, 17% protein, 100,000 A $49@50 bulk; suncured crumbles, 15% protein $42@44 bulk; suncured meal, 15% protein $40@42 bulk.

Ft. Worth: Demand good; supply sufficient on dehydrated, limited on suncured; 17% protein dehydrated $51, Ft. Worth area, truck; Kansas dehydrated, 17%, 100,000 A $54@55, rail; suncured No. 1 13% protein ¼-in. grind, truck $39.

New Orleans: Demand fair; trend steady; supply limited; $56@57; pellets $52@53.

Philadelphia: Demand dull; supply fair; 17% dehydrated $57.50.

Boston: Demand fair; supply adequate; dehydrated, 17% $55.50; suncured, 13% $45.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $43, delivered, truck loads; 136,000 A unit dehydrated $69, delivered, truck loads.

Denver: Demand fair; trend higher; supply good; dehydrated $42, for carloads.

St. Louis: Demand slow; supply ample; trend steady; 13% fine suncured $40; dehydrated, 17%, 100,000 A $51.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $58.

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $50.50; 13% No. 1 fine ground $40.

Kansas City: Demand fairly good, with considerable interest in forward bookings, but buyers and sellers are apart on forward quotations; production tailing off as season nears end; dehydrated alfalfa meal with 17% protein and 100,000 units of vitamin A guaranteed on arrival $46, sacked; reground pellets $46, sacked; bulk pellets $41; reground oiled pellets $48, sacked; meal with 18% protein and 125,000 A $51, sacked; suncured meal demand slow with offerings light; price unchanged; No. 1 fine ground $33.50@34, No. 1 ¼-in. $31.50@32, No. 2 ½-in. $29.50@30.50, sacked.

Memphis: Demand fair; trend higher; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $48.

Omaha: Demand good; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $41; sacked meal $46.

Minneapolis: Firm trend; good demand; further price advance expected; adequate supply of 17%, higher quality limited; reground pellets $51; oiled reground $53, both 17% protein, 100,000 units vitamin A guaranteed on arrival.

Buffalo: Demand poor; trend higher; supply adequate; $59, Boston.

ANIMAL FATS (STABILIZED)

Kansas City: Demand fair; trend steady; supply moderate; 7½¢ lb., tank cars, for bleachable fancy tallow.

Ft. Worth: Demand fair; supply adequate; prime tallow, tank cars 7½¢ lb.; drums 9¼¢ lb., f.o.b. north Texas packing plants with returnable drums.

New Orleans: Demand slow; trend steady; supply adequate; 7½@8¢ lb., tank cars.

Louisville: Demand fair; trend steady; supply good; bleachable fancy 7¾¢ lb.; white tallow 8¢ lb.; yellow grease 6½¢ lb.

San Francisco: Demand fair; supply ample; bleachable fancy 8¼¢ lb.; yellow grease 6¾¢ lb.

Chicago: Demand fair; supply adequate; bleachable fancy tallow, tank truck or carlots 7⅞¢ lb.; yellow grease 7@7⅛¢ lb.

St. Paul: Strong domestic demand in Midwest moved price up ½¢ lb. to 7⅝¢ lb., f.o.b. plant for bleachable fancy tallow.

BARLEY FEED

Milwaukee: Demand good; supply fair; needles 97¢@$1.10 cwt.; ground screenings $24, sacked, Milwaukee.

Baltimore: Demand quiet; supply adequate; $44.50.

Chicago: Demand quiet; supply adequate; $34.

Seattle: Demand and supply good; trend firm; $51, bulk, delivered, truck lots.

Boston: Demand slow; supply ample; $44.50.

San Francisco: Demand fair; supply ample; rolled $59; ground $58.

New Orleans: Demand slow; trend unsteady; supply light; $68@69.

Philadelphia: Demand slow; supply fair; pulverized $44.50.

Portland: Demand good; supply ample; trend unchanged; rolled $60, ground $58.

Los Angeles: Demand fair; trend firmer; supply ample; standard rolled $3.10 cwt., sacked; standard ground $3.10 cwt., sacked.

Ogden: Supply normal; rolled $43@48; whole barley $37@42.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points; granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

Denver: Demand light; trend nil; supply ample; $13.50, f.o.b. Wyoming shipping point.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply good; $105@110.

BLOOD MEAL

Chicago: Demand and supply fair; $140, guaranteed 80% protein.

Louisville: Demand good; trend steady; supply normal; $105@110.

Portland: Demand steady; supply ample; trend unchanged; $120.

New Orleans: Demand good; trend steady; supply light; $117@122.

Ogden: Supply normal; $115 in 100-lb. bags, f.o.b. Ogden.

San Francisco: Demand good; supply tight; $7.25 a unit of ammonia.

Los Angeles: Demand slower; trend easier; supply adequate; $7.50@7.75 a unit of ammonia.

BONE MEAL (STEAMED)

Boston: Demand steady; supply fair; $90.

Seattle: Demand steady; trend firm; supply good; $55, ex-dock, truck lots.

Denver: Demand and supply fair; trend steady; Bay Shore, Cal. $75.

Cincinnati: Demand fair; trend steady; supply good; $90.

Chicago: Demand and supply fair; $75.

New Orleans: Demand fair; trend easy; supply normal; $81@86.

Portland: Demand steady; supply ample; trend unchanged; $95.

Los Angeles: Demand fair; trend unchanged; supply adequate; imported $73.50 in 20-ton lots.

Ft. Worth: Demand fair; supply light; $85, f.o.b. Ft. Worth, local manufacture.

Louisville: Demand slow; trend steady; supply light; $85@90.

Buffalo: Demand good; trend steady; supply ample; $90.

San Francisco: Demand good; supply ample; $75.

BREWERS DRIED GRAINS

Los Angeles: Demand and trend steady; supply fair; $49 bulk, $53 sacked.

Ft. Worth: Demand fair; supply moderate; $54.40, October.

Louisville: Demand good; trend stronger; supply fair; $54.

New Orleans: Demand good; trend steady; supply ample; $52@53.50.

Milwaukee: Demand good; supply fair; $47.50, Milwaukee.

Boston: Demand good; supply adequate; 26% $56@57; 22% Canadian $56.

St. Louis: Demand fair; trend steady; supply ample; $46.

Cincinnati: Demand fair; trend steady; supply adequate; $54.50.

Chicago: Demand fair; supply adequate; 26% $46@48.50.

San Francisco: Demand fair; supply ample; $54.

Buffalo: Demand and supply fair; trend steady; $50.50, bulk, Boston.

Philadelphia: Demand dull; supply fair; $58.

BREWERS DRIED YEAST

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

Denver: Demand and trend fair; supply light; 9¢ lb.

Chicago: Demand good; supply limited; 10@11⅛¢ lb. in carlots; 10¼@12½¢ lb., l.c.l.

Boston: Demand and supply steady; 10¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Portland: Demand steady; supply ample; trend unchanged; 8½¢ lb.

Los Angeles: Demand and trend steady; supply limited; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Louisville: Demand slow; trend steady; supply good; 10@10½¢ lb.

Buffalo: Demand good; trend steady; supply limited; $9.85 cwt.

Omaha: 10½¢ lb.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅝¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅝¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Milwaukee: Demand good; supply limited; 10⅛@11½¢ lb. in carlots; 10⅝@12½¢ lb., l.c.l.

BUTTERMILK-CONDENSED

Louisville: Demand dull; trend steady; supply normal; $4.25 cwt.

Wichita: Demand good; supply insufficient; $2.85 cwt.

New Orleans: Demand slow; trend steady; supply normal; $4.25@4.30 cwt.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Los Angeles: Demand fair; trend unchanged; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

Ogden: Supply average; $4.40, 100-lb. drum.

San Francisco: Demand fair; supply good; $5 cwt.

Boston: Demand and supply light; 3⅛¢ lb.

Chicago: Demand light; supply adequate; $3.25@3.50 cwt. in carlots.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Los Angeles: Demand steady; trend unchanged; supply ample; $10.25.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

CHARCOAL

Los Angeles: Demand steady; supply ample; trend unchanged; hardwood poultry $156 sacked in less than ton lots; $144.40 sacked in ton lots.

Boston: Demand and supply light; $100.

Chicago: Demand quiet; supply adequate; poultry charcoal $106 in 50-lb. multiwalls.

San Francisco: Demand steady; supply ample; $141.

COCONUT OIL MEAL

Portland: Demand slow; supply ample; trend unchanged; $75.

Los Angeles: Demand slow; trend unchanged; supply adequate; $70@71 bulk.

Seattle: Demand good; trend strong; supply ample; $76, ex-dock, Seattle (Philippine production).

San Francisco: Demand fair; supply ample; solvent $71; expeller $73.50.

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply good; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20½¢ lb.; 300 D, 2,250 A 18½¢ lb.; 600 D, 1,500 A 18¢ lb.; 300 D, 1,500 A 15¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14⅛@15⅛¢, 1,500 A 18⅛@20¢, 2,250 A 18⅛@21¢, 3,000 A 21⅛@23¢; 600 ICU, 1,500 A 17⅛@19⅛¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Los Angeles: Demand and trend steady; supply adequate; 5¢ lb.

New Orleans: Demand light; trend steady; supply limited; 50% solid $89@92, f.o.b. Gulf.

Boston: Demand active; supply scarce; 5¢ lb., nominal.

Denver: Demand poor; trend steady; supply ample; f.o.b. Denver $187.40.

New York: Demand and supply fair; trend steady; 4⅝@5¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $49.80, meal $85.80.
Atlanta: Feed $55.98, meal $91.98.
Birmingham: Feed $54.64, meal $90.64.
Boston: Feed $54.84, meal $90.84.
Chicago: Feed $43, meal $79.
Cleveland: Feed $51.14, meal $87.14.
Denver: Feed $53.51, meal $89.51.
Ft. Worth: Feed $51.96, meal $87.96.
Indianapolis: Feed $48.36, meal $84.36.
Kansas City: Feed $43, meal $79.
Louisville: Feed $50.21, meal $86.21.
New Orleans: Feed $53.20, meal $89.20.
New York: Feed $54.43, meal $90.43.
Norfolk: Feed $53.71, meal $89.71.
Philadelphia: Feed $54.02, meal $90.02.
Pittsburgh: Feed $51.96, meal $87.96.
St. Louis: Feed $43, meal $79.

CORN OIL MEAL

Seattle: Demand steady; trend easy; supply ample; $55 bulk, delivered, truck lots.

Louisville: Demand dull; trend steady; supply normal; $52.45.

Cincinnati: Demand fair; trend steady; supply adequate; $51.

COTTONSEED OIL MEAL

San Francisco: Demand good; supply ample; expeller $62.20; 41% solvent $66.20.

Cincinnati: Demand fair; trend steady; supply adequate; old process $65.

Denver: Demand and supply fair; trend steady; $62.

Seattle: Demand fair; trend easy; supply good; $68 delivered truck lots, 41% expeller process.

St. Louis: Demand slow; trend steady; supply increasing; $67.75.

Boston: Demand fair; supply ample; $71.80@73.

Chicago: Demand and supply fair; hydraulic $53; solvent $52.50, basis Memphis.

Los Angeles: Demand slow; trend unchanged; supply adequate; new crop, Mexican expeller $49@50, bulk; new crop solvent $61@62, bulk.

Ft. Worth: Demand good; supply adequate; carlots, 41% old process $56@57; solvent $57.60@58; pellets $2 additional; cottonseed hulls $16.

Louisville: Demand fair; trend easy; supply ample; old process $63.40; new process $62.40.

Kansas City: Very little demand; offerings adequate; prices easier; old process $53.50 sacked, Memphis; solvent $52 sacked, Memphis. Memphis market now lower than Texas points delivered Kansas City.

Portland: Demand slow; trend lower; supply ample; $64.

Wichita: Demand slow; supply ample; 41% old process $63.

New Orleans: Demand slow; trend weaker; supply ample; $69@70.

Philadelphia: Demand dull; supply fair; $71.

Ogden: Supply average; 41% $63@65.

Omaha: Demand slow; supply good; 41% solvent $58.80, bulk, delivered.

Memphis: Demand fair; trend steady; supply plentiful; prime 41% protein, old process $53; new process, 41% solvent $52.

Atlanta: Demand good; trend strong; supply ample; 41% $64, sacked, immediate.

Buffalo: Demand fair; trend steady; supply adequate; $72, Boston.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9⅝@10¢ lb.; 3,000 ICU 11⅛@12¢ lb., in ton lots or larger.

Cincinnati: Demand fair; trend steady; supply adequate; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum flourine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.98, sacked, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18¼%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Denver: Demand fair; trend light; supply light; $77.70, f.o.b. Texas City.

Cincinnati: 18½% phosphorus $92@93.

Portland: Demand steady; supply ample; trend unchanged; $115.

DISTILLERS DRIED GRAINS

Louisville: Demand good; trend steady; supply fair; production and demand increasing; bourbon grains: light $57, dark $59, solubles $77.

Philadelphia: Demand slow; supply light; dark and light $67.

Seattle: Demand good; trend firm; supply ample; $65, delivered, truck lots.

Boston: Demand good; supply spotty; Canadian medium $65; domestic dark $66@67; light $67.

Cincinnati: Demand poor; trend steady; supply adequate; by truck $58.50.

San Francisco: Demand fair; supply ample; solubles $85.

Buffalo: Demand and supply fair; trend steady; $63, bulk, Boston.

DRIED BEET PULP

Seattle: Demand slow; trend steady; supply good; $45, delivered, carlots.

Boston: Demand fair; supply ample; Canadian $56.

Milwaukee: Demand good; supply fair; molasses $57; plain $60.

San Francisco: Demand good; supply fair; $46.40.

Ft. Worth: Demand fair; supply sufficient; carlots, 50-lb. papers, O-N-D plain or molasses $58, delivered Ft. Worth.

Los Angeles: Demand steady; trend unchanged; supply ample; molasses $42.75@42.90 bulk.

Portland: Demand good; supply limited; trend unchanged; $50.

New Orleans: Demand fair; trend steady; supply adequate; $59@60.

Ogden: Supply average; $38@42.

Atlanta: Demand fair; trend steady; supply ample; $63.10.

Buffalo: Demand and supply fair; trend steady; $56, Boston.

DRIED BUTTERMILK

Los Angeles: Demand fair; trend steady; supply short; 11¢ lb.

Louisville: Demand fair; trend steady; supply good; 11@11½¢ lb.

Ogden: Supply normal; $7.25, 100-lb. bag.

New Orleans: Demand slow; trend steady; supply ample; $10@10.50 cwt.

Milwaukee: Demand and supply fair; $10 cwt.

Boston: Demand good; supply tight; 11¢ lb.

San Francisco: Demand fair; supply ample; 11¢ lb.

Chicago: Demand and supply fair; medium acid $9.75@10; sweet cream $10.25 cwt., in carlots.

Buffalo: Demand good; trend firm; supply limited; $11.35 cwt.

DRIED CITRUS PULP

Boston: Demand slow; supply light; $49.50, f.o.b. shipping point.

San Francisco: Demand good; supply fair; meal $52.

Los Angeles: Demand and trend steady; supply limited; orange pulp: $41 bulk; lemon pulp: $39 bulk.

New Orleans: Demand fair; trend steady; supply ample; $51.50@55.50, f.o.b. Florida.

Los Angeles: Demand fair; trend unchanged; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.

Atlanta: Demand good; trend steady; supply limited; $56.50, immediate; meal $51.50.

DRIED SKIM MILK

Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.; roller $11.50 cwt.

Minneapolis: Firm trend; good demand for tight supply; $10.75@11 cwt.

Portland: Demand good; supply ample; trend unchanged; 13¢ lb.

Louisville: Demand fair; trend steady; supply ample; 11@11¼¢ lb.

New Orleans: Demand slow; trend steady; supply normal; $11.50@12 cwt.

Philadelphia: Demand slow; supply light; $12.50 cwt.

Ogden: Supply average; $15.15, 100-lb. drum.

Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.

Milwaukee: Demand and supply fair; $11 cwt.

Boston: Demand and supply fair; 12¢ lb. in ton lots.

Chicago: Demand good; supply light; $10.75 cwt. in carlots.

San Francisco: Demand and supply fair; 13½¢ lb.

DRIED WHEY

Boston: Demand steady; supply plentiful; 5½¢ lb., f.o.b. plant.

Seattle: Demand steady; trend firm; supply good; $6.40 cwt., ex-warehouse, l.c.l.

Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.

Chicago: Demand fair; supply adequate; $5.25@5.50, f.o.b. plant.

San Francisco: Demand steady; supply good; $5.50 cwt.

Kansas City: Demand fair; trend firm; supply lighter in seasonal trend; $5.50 cwt., producers' plants for regular or partially delactosed.

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Portland: Demand good; trend higher; supply limited; $7 cwt.

Los Angeles: Demand good; trend unchanged; supply adequate; $6.16 cwt. in carloads; $6.40 cwt. in l.c.l.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6, October, sacked, delivered Ft. Worth or any Texas point; $6.10, October, ton lots, f.o.b. warehouse, Ft. Worth.

Louisville: Demand fair; trend steady; supply ample; 6@6¼¢ lb.

New Orleans: Demand fair; trend steady; supply ample; $5.75@6 cwt.

Philadelphia: Demand slow; supply light; $6.25 cwt.

Ogden: Supply normal; $6.90, 100-lb. bag.

Minneapolis: Steady trend; good demand; adequate supply; $5.50 cwt., f.o.b. producers' points for both regular and partially delactosed.

FEATHER MEAL (HYDROLYZED)

Los Angeles: Demand good; trend steady; supply short; $1.25 a unit of protein.

Ft. Worth: Demand good; supply very limited; 85% to 87% protein $107, f.o.b. trucks, north Texas plants.

Boston: Demand steady; supply light; $35, f.o.b. shipping point.

Salisbury, Md.: Demand good; supply limited; $93 bulk, f.o.b. plants.

Atlanta: Demand fair; trend steady; supply ample; $92, immediate, f.o.b. Alabama and Georgia producing points.

FISH MEAL

Milwaukee: Demand and supply good; 60% $157, Milwaukee.

Boston: Demand very active; supply scarce; $138, nominal, f.o.b. shipping points.

Seattle: Demand good; trend easy; supply limited; $2.40 a unit protein, ex-dock, Alaska herring.

Denver: Demand light; trend fair; supply fair; $2.20 a unit of protein, f.o.b. West Coast.

Cincinnati: Demand fair; trend steady; supply adequate; $164.

Chicago: Demand good; supply very tight; eastern menhaden fish meal, 60% protein $144@148; Gulf, nominally $144; western blended, 60% protein $2.10 a unit of protein; delivered Midwest points $167; Northwest herring-salmon blend $131.50; Canadian herring, 73% protein $2.15@2.20 a unit of protein, subject to production.

San Francisco: Demand fair; supply ample; Peruvian fish meal $2.20 a unit of protein.

Portland: Demand slow; supply ample; trend unchanged; $2.25 a unit.

Los Angeles: Demand better; trend firmer; supply adequate local production, 60% protein $2.15@2.20 a unit.

Ft. Worth: Demand excellent; supply extremely inadequate for demand; last sales of Peruvian 65% protein $160, f.o.b. Houston, October.

Louisville: Demand slow; trend steady; supply normal; $160.

New Orleans: Demand light; supply limited; trend steady; menhaden, 60% $142@$143, scrap $133@134, f.o.b. Gulf.

Ogden: Supply average; $2.20 a unit, f.o.b. Coast; 65% $151@153.

Atlanta: Demand good; trend strong; supply extremely limited; 60% $157, immediate, nominal.

Minneapolis: Firm trend; good demand for very tight supplies; 60% menhaden $167; 70% herring $2.30 a unit of protein, West Coast.

Buffalo: Demand good; trend higher; supply extremely limited; 60% protein menhaden $165 bulk, $170 sacked.

HAY

Boston: Demand good; supply adequate; No. 2 timothy $40@42; No. 2 red clover $43@45.

Seattle: Demand slow; trend firm; supply good; alfalfa, U.S. No. 2 green $30, delivered, truck lots.

Denver: Demand poor; trend poor; supply more than ample; hay, alfalfa, third cutting $24@25; mountain hay, timothy $28@32.

Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.

Portland: Demand good; supply ample; trend unchanged; $26.

Los Angeles: Firmer tone; good interest top quality; fair interest in lower grades; U.S. No. 1 $31@33; U.S. No. 2 leafy $28@30; U.S. No. 2 green $27@28; U.S. No. 2 $24@26.

Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; prairie, No. 2 $26@28; No. 2 Johnson grass $22@24, delivered Texas common points.

Louisville: Demand dull; trend steady; supply good; No. 1 hay, any variety of local or northern $35, No. 2 $32; straw $20.

Wichita: Demand poor; supply ample; prairie $8@10, alfalfa $10@12.

Philadelphia: Demand slow; supply fair; $32@35.

Ogden: Supply average; $1 bale; $15 ton in field; $18 in barn.

HOMINY FEED

Kansas City: Demand slow; trend easier; supply adequate to meet current interest; yellow $32@33.50, bulk, Kansas City.

Louisville: Demand slow; trend steady; supply normal; $47.50.

New Orleans: Demand slow; supply light; trend steady; $51@52.50.

Milwaukee: Demand good; supply fair; $44.

Boston: Demand fair; supply adequate; $49 in bulk.

St. Louis: Demand fair; trend lower; supply adequate; yellow $43.

Seattle: Demand fair; trend easy; supply good; $55, carlots.

Cincinnati: Demand fair; trend steady to lower; supply adequate; $46.50.

Chicago: Demand fair; supply adequate; $44@44.50.

Memphis: Demand nil; trend steady; supply ample; white $48, yellow $48.

Buffalo: Demand and supply fair; trend steady to higher; $50, bulk, Boston.

LINSEED OIL MEAL

Milwaukee: Demand good; supply fair; old process $67.50; new process $60.50.

Boston: Demand and supply light; $68.

Seattle: Demand fair; trend steady; supply limited; $78, delivered, carloads, 34% protein.

Omaha: Demand fair; supply ample; 34% solvent $55.80, bulk; 32% old process $62.80.

Minneapolis: Strong undertone; good demand; good supply; new process $50@50.50 bulk, spot or October; November-December $51; old process $57, bulk.

Denver: Demand and supply fair; trend steady; $69.

Cincinnati: Demand poor; trend steady; supply adequate; new process $69; old process $75.

Chicago: Demand fair; supply adequate; solvent $54.50; expeller $61.50, basis Minneapolis.

San Francisco: Demand fair; supply ample; $68.

Kansas City: Demand light; trend steady; offerings not pressing; $50@50.50, bulk, Minneapolis, for solvent meal.

Portland: Demand slow; supply ample; trend unchanged; $78.

Ft. Worth: Demand slow; supply adequate; carlots, 34% solvent; October $74.50@75, November-December $75.50@76; pellets $2.50 premium.

Louisville: Demand slow; trend steady; supply ample; old process $75.40; new process $68.90.

Wichita: Demand slow; supply ample; 34% $74.50.

New Orleans: Demand slow; supply adequate; trend steady; $68.50@69.

Philadelphia: Demand and supply fair; 34% $72.50.

MALT SPROUTS

New Orleans: Demand fair; trend steady; supply limited; $42.50@45.

Milwaukee: Demand good; supply fair; odd weights $42; even weights $43.50.

Boston: Demand and supply limited; $42.50.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $45@48.

Chicago: Demand fair; supply adequate; No. 1 $43.50@44.

MEAT AND BONE SCRAPS

Boston: Demand steady; supply good; $1.50 a protein unit; converted 50% $87.50.

Chicago: Demand fair; supply tight; 50% protein $100@105.

Omaha: $110.

New York: Demand good; trend strong; supply light; 50% $85, 55% $92.50, bulk; 50% $88, 55% $95.50, sacked.

St. Paul: Demand off, but tight supplies forced price higher; 50% meat and bone meal $110@115.

Seattle: Demand good; trend steady; supply fair; $115, ex-warehouse, 50% protein.

St. Louis: Demand fair; trend firm; supply short; $113.

Cincinnati: Demand good; supply fair; trend stronger; 50% meat and bone scraps $102.

Denver: Demand slow; trend steady; supply ample; 50%, bag product $97.50.

Louisville: Demand slow; trend steady; supply normal; $100.

Los Angeles: Demand slow; trend unchanged; supply ample; 50% protein $2.15@2.20 a unit, bulk.

Ft. Worth: Demand fair; supply adequate; meat and bone, 50% $103@105, f.o.b. or delivered Ft. Worth.

MEAT AND BONE MEAL

Buffalo: Demand fair; trend steady; supply ample; 50% meat scraps $97.50 bulk, $102.50 sacked.

Wichita: Demand fair; supply sufficient; 50% $115, f.o.b. plant; 55%, no quotations, no offerings.

Portland: Demand slow; supply ample; trend unchanged; $2.20 a unit.

New Orleans: Demand fair; trend steady; supply average; $110@112.50.

Kansas City: Demand fair to good; trend steady; supply not larger but about sufficient for current demand; 50% meat and bone meal $110@112.50.

Ogden: Supply average; $110, 100-lb. bags.

San Francisco: Demand good; supply fair; $2.10 a unit of protein.

MILLFEED

Minneapolis: Weak trend; weak demand; heavy supplies; bran and standard midds. $30@31; flour midds. $43; red dog $45@50.

Kansas City: Demand fair to slow; trend easier; supply plentiful due to heavy mill running time; sacked bran shows relative strength; bran $31@31.75, shorts $30.50@31.25, sacked; bulk bran $25.50@26.25, middlings $27@27.75, shorts $28.50@29.25.

Wichita: Demand poor; supply ample; basis Kansas City; bran $31@31.50, shorts $33@33.50; bran declined 75¢ and shorts $4.50, compared with the preceding week.

Ft. Worth: Demand fair; supply sufficient; carlots, burlaps, prompt, bran $38.50.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

gray shorts $40, delivered Texas common points; $2 lower on bran and $5 lower on shorts, compared with previous week.

Omaha: Demand slow; supply good; sacked bran $36; sacked gray shorts $33; bulk standard midds. $29.

New Orleans: Demand good; trend steady; supply tight; bran $43.50@44.25, shorts $49.25@50.

Chicago: Bran and standard midds. dipped $2@3 ton during the week ending Oct. 8, while other millfeeds held steady. Traders said the lower base apparently constituted a trading level and volume picked up. Quotations: bran $35.50@36, standard midds. $37@38, flour midds. $49@50, red dog $54@55.

St. Louis: Demand fair; trend lower; supply ample; bran $36.50@37, shorts $36@36.50, sacked; bran $35.50@36, shorts $33.50@34, middlings $32@32.50, bulk.

Cincinnati: Demand fair; trend steady to lower; supply adequate; bran $40.50; middlings $43.50.

Boston: Demand very cautious; supply ample; bran $46@47; middlings $47@48.

Buffalo: Millfeed demand was light last week. Necessity caused some sporadic buying but demand was for spot only, with nothing beyond. Bran, middlings and red dog all ended the week off $1. Quotations Oct. 8: bran $37@39.50, standard midds. $38.50@41, red dog $55@56.50. The bulk differential on both bran and middlings was $8.

New York: Demand good; trend upward; supply fair; bran $47@47.50, standard midds. $48.50@49.

Philadelphia: Demand slow; supply fair; bran $46.50; standard midds. $48; red dog $66.

Louisville: Demand fair; trend easy; supply good; bran $42.35, mixed feed $43.85, shorts $45.85, middlings $44.30.

Memphis: Demand poor; trend lower; supply ample; wheat bran $38.75, gray shorts $39.50, standard midds. $38.80.

Seattle: Demand fair; trend easy; supply ample; $41, common transit points, carlots.

Portland: Demand slow; supply ample; trend lower; $40; middlings $48.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $40, middlings $45; to Denver: red bran and mill run $47, middlings $52; to California: red bran and mill run $47.50, middlings $52.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Demand slow; trend easier; supply ample; standard mill run $42.50 bulk; red bran $43@44.

San Francisco: Demand fair; supply ample; millfeed $46.75; red bran $51.50.

MINERAL FEED

Portland: Demand good; supply ample; trend unchanged; $42.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95; 100-lb. bags $90, f.o.b. plant.

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3½% granules $38, phosphorus 2% $78 (all in 50-lb. paper bags).

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Ogden: Supply normal; $115 in 50-lb. blocks; $103, granular, 50-lb. bags.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

Denver: Demand and supply good; trend fair; 50-lb. bag 6% phosphate $100.

MOLASSES

New York: Demand and supply good; trend lower; blackstrap 17¢ gal., tank cars, tank wagons, f.o.b. New York.

San Francisco: Demand and supply good; $25, f.o.b. cars Richmond, Cal.

Boston: Demand slow; supply plentiful; 18½¢ gal. in tank cars.

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Denver: Demand and supply fair; trend steady; 14¢ gal., New Orleans.

Seattle: Demand fair; trend steady; supply good; $25, f.o.b. Seattle, tank car lots or truck lots.

Milwaukee: Demand fair; supply good; blackstrap 14¢ gal., f.o.b. New Orleans.

St. Louis: Demand slow; trend steady; supply ample; 14¢ gal., New Orleans.

Cincinnati: Demand fair; trend steady; supply adequate; 14¢ gal., New Orleans.

Ft. Worth: Demand fair; supply sufficient; blackstrap 16¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $35.06, seller's market price on date of shipment.

Kansas City: Demand quiet; trend firm; supply adequate; 14¢ gal., tank cars, New Orleans, for nearby shipment; 14½¢ gal. for November-December shipment.

Los Angeles: Demand good; trend unchanged; supply adequate; $25, bulk, f.o.b. tank cars; $25.25, bulk, f.o.b. tank trucks.

New Orleans: Demand fair; trend steady; supply ample; 15¢ gal., tank cars and trucks; 600-lb. customers' drums $9.62.

Louisville: Demand slow; trend steady; supply ample; 14¢ gal., tank car lots, f.o.b. Gulf ports.

Memphis: Demand fair; trend steady; supply ample; blackstrap 14¢ gal., tank car, f.o.b. New Orleans, and $30 ton, delivered, Memphis, truck.

Atlanta: Demand good; trend steady; supply limited; citrus $22.50, bulk, f.o.b. Florida producing points, immediate.

Minneapolis: Steady trend; fair demand; good supply; $34.50, f.o.b. terminal.

Buffalo: Demand fair; trend lower; supply good; 17⅛¢ gal., f.o.b. Albany.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Minneapolis: Market at standoff with quiet demand and supplies about equal to demand; feeding rolled oats $77; pulverized $42; feeding oatmeal $65@68; reground $14@16; crimped $54.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $44.70; reground oat millfeed 3% protein, sacked $32.70.

Louisville: Demand dull; trend steady; supply ample; reground $21.80, rolled $33.30, feeding $79.30, pulverized white $49.30, crimped white $65.30.

Los Angeles: Demand fair; trend steady; supply adequate; pulverized, local production $60.

Portland: Demand slow; supply ample; trend unchanged; rolled $61; ground $58; cleaned $60.

Philadelphia: Demand slow; supply fair; pulverized white $52.50; Canadian oat feed $26.50; domestic oat feed $24.

Boston: Demand and supply fair; white pulverized $55; reground oat feed $18.75 @19.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $22; pulverized white oats $48; rolled oats $33.

Seattle: Demand fair; trend firm; supply ample; $40 bulk, delivered, truck lots.

Chicago: Demand fair; supply adequate; reground oat feed $14; fine ground feeding oatmeal $70; feeding rolled oats $79@80.

Memphis: Demand poor; trend higher; supply scarce; 3½% protein, reground oat feed $19.35.

OYSTER SHELL

Boston: Demand and supply steady; $25 in paper.

Cincinnati: Demand fair; trend steady; supply adequate; $23.45.

Seattle: Demand and trend steady; supply good; eastern $25, delivered, carlots.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand good; supply ample; trend unchanged; western $34, eastern $38.50; granite grit $26, shell flour $24.

Louisville: Demand fair; trend firm; supply ample; in 50-lb. paper $22.85, 50-lb. paper $23.10, 25-lb. paper $25.35.

New Orleans: Demand good; trend steady; supply plentiful; $15@15.50.

Los Angeles: Demand and trend steady; supply ample; $14.80.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $42.50.

Atlanta: Demand fair; trend steady; supply limited; 45% $66, immediate.

PEAT MOSS

Boston: Demand and supply steady; $3.15 bale.

Seattle: Demand poor; trend easy; supply good; $3.70 bale, delivered, truck lots.

Chicago: Demand fair; supply adequate; $3.60@3.70, standard 7⅛ cu. ft. bale.

San Francisco: Demand fair; supply ample; $3.75 bale.

Los Angeles: Demand fair; trend unchanged; supply ample; Canadian 6.1 cu. ft. bales $3.85.

Portland: Demand slow; supply ample; trend unchanged; $3.25 bale.

Philadelphia: Demand slow; supply fair; $2.90 bale, f.o.b. pier.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

Chittenango, N.Y.: Demand good; supply adequate; 90% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.35; 100-lb. cartons $1.36; freight prepaid to destination.

POULTRY BY-PRODUCTS

Salisbury, Md.: Demand good; supply limited; $100 bulk, f.o.b. plants.

Boston: Demand fair; supply improved; $101.50, f.o.b. shipping points.

Ft. Worth: Demand good; supply very limited; 55% protein $112.50, f.o.b. north Texas plants.

Atlanta: Demand fair; trend steady; supply ample; $105, immediate, f.o.b. Alabama and Georgia producing points.

Los Angeles: Demand fair; trend unchanged; supply ample; $1.85 a unit of protein.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand fair; supply ample; bran $40; polished $49.

Los Angeles: Demand fair; trend unchanged; supply adequate; bran, California production, high fat content $48.

Ft. Worth: Demand fair; supply tight; carlots, rice bran $33@44.25, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

Atlanta: Demand fair; trend steady; supply limited; bran $44, immediate.

SCREENINGS

Ft. Worth: Demand almost nil; supply sufficient; ground $25, nominal.

Minneapolis: Weak trend; supplies light; demand nominal; lights $1@5, mediums $9@20, heavies $21@30; Canadian bulk $16; Canadian ground $25; flaxseed screenings $33; oil type flaxseed screenings $42, basis 15%.

Cincinnati: Demand fair; trend steady; supply adequate; ground screenings $34; malt house $27, sacked; Canadian $25, in bulk.

Chicago: Demand fair; supply adequate; ground grain screenings $30; Canadian, bulk $20.

Buffalo: Demand and supply fair; trend steady to higher; ground $29.50, New York, lake and rail; unground, bulk $23.50, New York.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.36.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.08@2.10, delivered Texas common points.

Los Angeles: Demand steady; trend unchanged; supply ample; milo $2.27½ cwt., bulk.

SOYBEAN OIL MEAL

Omaha: Demand slow; supply good; 44% $68.40.

Minneapolis: Weak trend; sharp dip in prices dropped 44% $7 in week, ample new crop now available; $47 bulk, Decatur; $59.50 bulk, Minneapolis; 50% $71.50, Minneapolis.

Kansas City: Demand slow, with offerings showing some increase, particularly for western shipment meal; prices lower; 41% protein meal $50@51, bulk, Decatur, for nearby shipment, Kansas City and West; $46@47.50 for November-December shipment; unrestricted meal quoted nominally at $54, bulk, Decatur.

Portland: Demand fair; supply ample; trend unchanged; October $53, November-December $46.

Los Angeles: Demand fair; trend weak; supply adequate; $79.50@80 bulk.

Ft. Worth: Demand fair for nearby, slow for forward position; supply sufficient; carlots 44%: $75.50 week of Oct. 13, $74.50 last half October, $71.50 November-March, coupled; 50% protein: $82.50 week of Oct. 13, $81.50 last half October, $78.50 November-March, coupled; truck meal 44% $71.50 prompt, $65.50 November-December.

Boston: Demand cautious; supply ample; 44% $54.50@56.00; 50% $66, both f.o.b. bulk Decatur.

Louisville: Demand slow; trend weak; supply ample; $66.20, off $4.

Wichita: Demand good; supply insufficient; 44% $73, 50% $83, f.o.b. Wichita.

New Orleans: Demand slow; trend steady; supply adequate; $70@71.

Philadelphia: Demand and supply fair; trend unsettled; 44% $54.50, bulk, Decatur.

Ogden: Supply average; $81@86.

Milwaukee: Demand good; supply fair; $54, bulk, Decatur.

St. Louis: Demand slow; trend lower; supply ample; $65.

Cincinnati: Demand fair; trend lower; supply adequate; $54, bulk, Decatur.

Denver: Demand fair; trend down; supply good; $68, bulk, Denver.

Seattle: Demand steady; trend easy; supply ample; $92, delivered, carlots.

Decatur: The long awaited adjustment to a new crop basis for soybean oil meal occurred this week, with prices dipping around $7 in the central states. Soybean processors are said to be operating after some shut-downs and new crop meal is available. Meal for November and December shipment averages around $4 lower than current offerings. Quotations: 44% protein soybean oil meal, bulk, unrestricted, basis Decatur $53@53.50; eastern restricted $52@52.50; 50%, bulk, unrestricted, basis Decatur $64.50; eastern restricted $63.50.

San Francisco: Demand fair; supply ample; $36.50.

Atlanta: Demand good; trend steady; supply ample; 44% $72, immediate.

Memphis: Demand fair; trend lower; supply scarce; prime 44% solvent $63, f.o.b. Memphis.

TANKAGE

Wichita: Demand fair; supply sufficient; 60% $117.50, f.o.b. plant.

St. Louis: Demand fair; trend firm; supply short; $113.

Omaha: $112.

St. Paul: Firm trend; demand off; very tight supplies; $110@115.

Chicago: Demand and supply fair; 60% protein $107.50@112.50.

Cincinnati: Demand good; trend steady; supply short; 60% digester $107.50, sacked, Cincinnati.

Ft. Worth: Demand fair; supply light; 60% digester $107@109, f.o.b. Ft. Worth.

Louisville: Demand slow; trend steady; supply normal; 60% $105.

Kansas City: Demand fair to good; trend firmer; supply light; 60% digester $112.50@113.

New Orleans: Demand fair; trend steady; supply light; $122@125.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand good; supply adequate; trend strong; $105@107.

Chicago: Weaker trend; demand off slightly; better supply situation; $100.

Buffalo: Demand fair; trend steady to higher; supply poor; commercial grade $105, nominal.

OIL PLAN

(Continued from page 4)

ministration on the part of Sen. Humphrey at a critical juncture just prior to election.

Another influence which also will carry weight in any decision, of course, will be the prospective price movement of soybeans in the market place. It is pointed out in some quarters that it would be less expensive in the long run to disburse additional CCC cash at this time to process beans for the end products of soy oil, than to permit the bean market to drop another 5¢ bu. in the market place at time of harvest.

The equation seems to add up to the conclusion that the White House will probably give its approval of a donation program with the volume held down in size at the outset, subject to further increases later. In so doing the administration will pay lip service to the theory and be prepared to go all-out later if necessary.

RATE ADVISOR NAMED

MEMPHIS—The city of Memphis has appointed J. B. McGinnis as advisor on grain and feed freight rates. Mr. McGinnis will continue as traffic consultant of the Memphis Board of Trade, a post he has held since 1917. His appointment was made by the City Commission. For some time, Mr. McGinnis has been working with the city on grain and feed freight rates in an unofficial capacity.

SINCE 1906
FARMERS FRIEND
TRADE-MARK REG. U.S.PAT.OFF.
all-purpose
MINERAL FEED
an economical source of high grade and well-balanced
TRACE MINERALS
Contains important mineral elements blended with COBALT, MANGANESE, ZINC, BORON, IRON, COPPER, STABILIZED IODINE and other trace minerals in carefully calculated proportions to supply necessary mineral nutrition.
Also Contains
● LIQUID BLACKSTRAP MOLASSES ● IRRADIATED YEAST (Source of Vitamin D_2)
We Sell Thru Dealers and Jobbers Warehouses from Coast to Coast
By the TON, TRUCKLOAD, or CARLOAD
Write Today Regarding Our Dealer or Jobbing Proposition
FARMERS FRIEND MINERAL CO. NAPOLEON, OHIO

POULTRY

(Continued from page 1)

and economics and marketing.

The meeting was unique inasmuch as it mixed business with pleasure and in well organized manner. The social side of the program was studded with interesting events, including receptions at both the Canadian and U.S. embassies as well as numerous receptions put on by the Mexican government for the delegates. An outstanding part of the program included a trip to La Hacienda poultry farms for an inside look at Mexico's progress in poultry raising.

On the scientific side of the meeting papers were presented covering all phases of both basic and applied poultry science. Research contributions from all parts of the world were concerned with new and fascinating research as well as further studies on existing ideas and methods. Methods of feeding chickens, turkeys, geese and ducks were discussed.

Turkey Feeding

In a paper entitled "Methods of Feeding Growing Turkeys," R. M. Blakely and co-workers of the Canada Department of Agriculture reported that cereal grains, particularly wheat, could be fed successfully to turkeys with a protein pellet supplement. They found that when the pellet supplement was mixed with whole wheat or a mixture of wheat and oats, there was little tendency for the birds to select out the pellets from the grain.

S. J. Slinger and co-workers from Ontario Agricultural College in Canada studied the effects of environment on growth and feed utilization of turkeys. They reported on a series of experiments which were made to determine the relative performance of broad breasted bronze turkeys reared on deep wood shavings litter and on slatted floors during an 8 to 24 week period. Male birds were found to achieve significantly greater body weights at 24 weeks of age when grown on deep litter than when they were grown on slatted floors. Females appeared to grow about equally well on litter and on slatted floors when fed a mash and grain diet on a free choice basis. However, females reared on deep litter weighed significantly more than females reared on slatted floors when fed an all-mash diet in pellet form. They found that the differences in growth appeared to be due to the fact that the birds reared on slatted floors required more energy than the birds reared on deep litter. They also found that abnormalities of the foot were considerably more prevalent among turkeys reared on slatted floors.

Laying Hen Diets

The diet of the laying hen was given close scrutiny by members of the congress and subjects of protein-energy relationships of the diets were discussed. A paper was presented by Robert J. Lilly and C. A. Denton, U.S. Department of Agriculture, concerning the protein-energy relationships in laying diets for hens.

In this work they found that there was no effect on egg production, egg weight, gain and body weight, fertility and hatchability and progeny performance from the two energy levels employed of 760 and 890 calories.

Growing Pullets

M. L. Sunde and H. R. Bird of the University of Wisconsin reported on the results of studies on single comb White Leghorn chickens concerning the protein requirements for growing pullets. They found that the feed cost per pullet tended to decrease as the protein level decreased. However, they cautioned that the figures will change as the price of the grain and protein supplement changes. There were no differences in pounds of feed required per pound of gain, egg production in the hen house, mortality, age to first egg, pound of feed required per dozen eggs and body weight and hatchability.

Further work on the requirements of the growing pullet was presented by A. T. Hill and co-workers of the Canada Department of Agriculture concerning the influence of restricted feeding during the rearing and on subsequent performance of White Leghorn pullets. They found that in comparison with the performance of birds on full feed, a 30% restriction of feed for birds during the growing period on range was found to increase subsequent egg size and the net egg and meat income over feed cost.

Added Fat

J. R. Couch and co-workers of the Texas A&M College Experiment Station found that the feeding of added fat to caged egg layers resulted in a rise in total serum cholesterol and an increase in abdominal fat deposition. They found that an addition of 500 milligrams of choline chloride, 20 milligrams of vitamin E or 10 milligrams of vitamin B_{12} per pound of diet produced an increase in egg production and an improvement in feed conversion in the presence of 10% added animal fat. These supplements, they found, resulted in a decrease in liver fat content and serum cholesterol in the absence of added fat. But they were without appreciable effect at the levels tested in the presence of 10% added fat.

Although these reviews represented only a portion of the papers on this subject, one may conclude that a considerable amount of high quality work has been carried out and is in progress concerning protein-energy relationships and their effect on the diet of the laying hen, both during and prior to egg production.

Protein-Energy for Turkeys

Protein-energy requirements of the turkey were not forgotten and Dr. Rollin H. Thayer and associates of Oklahoma State University presented results of a study on this subject. The following conclusions were reached: (1) Market-weight turkeys can be produced on feed requirements of 2.1 lb. of feed per pound of gain for hens and 2.3 lb. of feed per pound of gain for toms. (2) The length of time to reach weight can be reduced by one week for hens and two weeks for toms when properly balanced rations are fed. (3) The growing turkey apparently does not have the inherent ability to balance protein and energy intake properly when fed mash and whole grain free choice. It was suggested that hens and toms should be grown in separate pens in order to meet fully the specific protein and energy requirements of both sections. The use of various by-products as sources of energy for poultry feeds was discussed as well as the use of various materials as poultry feed.

M. Yoshida of the National Institute of Agricultural Sciences of Japan reported on work concerning the nutrient value of the sweet potato as a carbohydrate source of poultry feeds. The work concluded that heat-treated sweet potatoes may be used at a low level in the diet for starting chicks and that they had a nutrient value nearly that of corn. Air-dried sweet potato unheated was not found to be satisfactory, however, as a replacement for corn.

Molasses

Work from Hawaii by Ernest Ross and associates on the effect of storage on the nutrient value of molasses confirmed further work from this station, that young chicks can tolerate and make good gains on fairly high levels of cane molasses. Both cane final molasses and beet molasses were found to be very stable when stored in steel drums for a period of at least two years.

The necessity of assaying fat by-products before their satisfactory use in poultry feeds for a source of energy was emphasized by W. F. Pepper and co-workers of Ontario Agricultural College, Canada. These workers presented reports on chick assays conducted to determine the value of two by-product fat preparations. By analysis of previous reports in the literature, data indicated their potential value as sources of energy for poultry feeds.

The subject of pigments in poultry carcasses was discussed as well as various management conditions and influences of lighting on feed conversion and utilization of both laying hens and growing chickens. Interesting questions and discussion on all papers by delegates from various parts of the world represented different views and ideas on some of our most important subjects. It was most interesting to note that conditions in some of the countries differed considerably from those confronted by poultry producers in the U.S., although many of their problems, of course, were very similar.

Extensive treatments of subjects of marketing as well as genetics and diseases were covered in the other sections at the congress, and their relationship to many of our problems of feed utilization and growth was clearly indicated. It is quite obvious from the papers presented in all sections that there is some very clear and concise thinking on the subject of poultry being carried out throughout the world. Although the U.S. might be considered to be a leader in the poultry industry in production and research, one must certainly recognize that many significant advances are being made by our collaborators across the seas and right here on the continent of the Americas.

The Mexican poultry industry has very apparently made some significant strides in recent years, and it appears as if the progress in the future will be most rapid and fruitful.

The delegates voted to hold the next World's Poultry Congress in four years in Australia. Bids for the congress to meet in the respective countries of Russia and Israel were also considered.

Paul E. R. Abrahamson

APPOINTED BY PEAVEY—Paul E. R. Abrahamson will join F. H. Peavey & Co., Minneapolis, Oct. 15 as an assistant director of its agricultural department, according to an announcement by F. Peavey Heffelfinger, president. Mr. Abrahamson has been an active leader in the agricultural field more than 30 years. He was associated with the McCabe Co. from 1946 until it was absorbed into the Farmers Union Grain Terminal Assn. recently. An animal husbandry graduate of North Dakota Agricultural College, Fargo, Mr. Abrahamson will assist other members of the Peavey and Occident farm service staffs in carrying out their companies' research programs and will provide consultation to farmers on agricultural problems. During his career, Mr. Abrahamson has been a vocational agriculture instructor, high school principal and county extension agent. A resident of Devils Lake, N.D., he will continue to headquarter there.

AFMA

(Continued from page 1)

related that the AFMA made its first important public relations efforts during World War II when it became necessary to prove that the industry was an essential one. Since then, with the establishment of the agricultural service division, committee activities devoted to public relations missions and production of films, AFMA work in this area has broadened considerably.

Several months ago Mr. Kathe's title was changed from that of director of the agricultural service division to director of public relations, Mr. Glennon said, marking a further step into broadened public relations efforts.

It was not determined at the conference what further activities the industry public relations directors might undertake as a group, although the possibility of future meetings is being considered, Mr. Kathe said.

Among the points brought out at the conference were these:

- Contacts with veterinarians at the level of association committees have been good, but more work must be done at the "grass roots" level. Joint feed-veterinarian conferences held in some states are making progress in this endeavor.
- Feed companies found a need for staff veterinarians when medicated feeds came into the picture, and this has helped to improve relationships with local veterinarians. Industry veterinarians should take an active part in their professional organization.
- Pharmaceutical houses have a large responsibility in veterinarian relationships, and they have made efforts to provide veterinarians with scientific information on particular feed additives.
- The Veterinary Drug Encyclopedia this year for the first time includes a section for medicaments added to feed.
- In dealing with college administrators, assistance should be offered in helping to develop curricula which will better fit graduates for employment in agri-business. Scholarships sponsored by the feed industry are valuable in improving relationships with college officials.
- A new publication is being developed to help encourage high school students to seek careers in agri-business.
- In recent years college specialists, vo-ag teachers and county agents more frequently have been invited to visit feed mills, attend feed company-sponsored feeder meetings and in other ways encouraged to better understand the industry.
- Some college research personnel have shown interest in receiving results of nutritional experiments conducted by feed companies so that they can better plan their research programs. Feed men should attempt to get better acquainted with all college research men and invite them to visit laboratories and experimental farms.
- State affiliates of the American Bankers Assn. are anxious to confer with feed industry representatives through their agricultural committees, and close contact with local bankers is desirable. Some companies have invited bankers to discuss credit matters with feed salesmen and obtained good results.
- Problems are developing as a result of studies purporting to show harmful effects on humans caused by some food products. The feed and food industries should be prepared to offer rebuttal to such claims with adequate scientific evidence.

STATE APPOINTMENT

SACRAMENTO, CAL. — Ward Henderson is the new chief of the California crop and livestock reporting service here.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
August 2	1,155	548	953	903	188	704	1,935	1,921
August 9	1,142	557	895	993	179	755	1,929	1,795
August 16	1,180	603	924	880	210	728	1,907	1,831
August 23	1,124	657	827	851	194	671	1,668	1,853
August 30	1,071	623	940	886	187	643	1,759	1,798
September 6	1,022	600	938	870	226	628	1,483	1,930
September 13	1,070	536	758	864	142	583	1,566	1,763
September 20	878	513	692	752	180	552	1,371	1,714
September 27	1,009	551	680	732	152	495	1,450	1,789
October 4	1,103	433	767	760	202	567	1,601	1,674

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
August 2	1,361	624	2,655	381	6,018	233	2,800	2,041
August 9	1,329	669	2,606	413	5,819	224	2,748	1,910
August 16	1,374	649	2,493	384	5,718	192	2,753	1,813
August 23	1,301	652	2,478	366	5,360	200	2,571	1,695
August 30	1,163	639	2,395	361	5,093	171	2,417	1,649
September 6	1,188	537	2,337	309	4,879	202	2,366	1,658
September 13	1,138	589	2,341	321	4,648	215	2,391	1,553
September 20	1,015	497	2,329	292	4,573	151	2,293	1,600
September 27	1,059	423	2,245	332	4,602	178	2,239	1,649
October 4	956	563	2,351	313	4,927	144	2,382	1,723

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	Total 22 areas 1957
August 2	2,979	438	2,353	313	156	1,098	31,685	27,510
August 9	2,934	443	2,282	388	179	1,049	31,244	27,055
August 16	2,778	392	2,196	374	205	978	30,541	26,625
August 23	2,816	467	1,948	359	165	905	29,098	25,934
August 30	2,587	373	1,869	344	125	824	27,886	25,490
September 6	2,381	395	1,898	359	168	878	27,218	25,228
September 13	2,283	400	1,740	342	174	914	26,335	25,028
September 20	2,165	355	1,618	249	193	821	24,803	24,298
September 27	2,242	309	1,469	287	175	829	24,896	24,134
October 4	2,405	371	2,023	247	123	871	26,506	24,675

HOG PRICE

(Continued from page 6)

pected to be about the same next year.

4. The supply of pork will average about 60 lb. per person for 1958. It is likely to be about 7 lb. (12%) larger in 1959. That increase would provide about the same supply of pork per person as in 1955 and 1956. Some forecasters believe that hog prices will drop 3% for each 1% increase in the pork supply. Thus they expect prices to average one-third lower in 1959 than in 1958. Such a decline would be nearly double that formerly caused by a similar increase in supply. It would put hog prices in a range of $12 to $18 in 1959.

This price range seems to be too low for next year, since beef supplies are expected to remain 8 to 10% below 1956 peak levels. In any event, the supply and price of feeds seem likely to favor further expansion of hog production in 1959.

5. The September pig crop report showed that farmers in the nine corn belt states listed expect to increase December-February farrowings by 20% over last year. Later farrowings in these states and total farrowings in other states are not likely to be increased as much as 20%. All together, the increase in spring farrowings seems likely to be 12 to 15% —or about the same as the increase in fall farrowings. Such an increase would not be excessive, considering the favorable hog-corn price relationships of the last two years and the present low level of hog production.

Iowa Economist

Meanwhile, Francis Kutish, Iowa State College farm economist, said the fall prices this year will be a little higher than last year, but a December-January price run-up probably will not occur because larger winter markets are anticipated from the sharply increased fall pig crop.

He said it is possible that hog breeders' enthusiasm resulting from prolonged high summer and fall prices and plentiful feed supplies could lead to a spring pig crop increase about like the rise in the fall crop.

Mr. Kutish indicated that if the spring pig crop increase is comparable to the fall increase, much lower hog prices will prevail in the fall of 1959. He said this would be so even considering the factors of increased population, shortages in beef and a smoothing out in seasonal hog supply.

"Hog prices are now so sensitive to supply," he said, "that serious price difficulty will almost surely result from such an increase."

WILL NOT REBUILD

JEFFERSON, ORE.—The Marion-Linn warehouse, destroyed by fire in late August, will not be rebuilt, according to an announcement by William Moye, manager.

Cereal Byproducts Names Staff Member

CHICAGO—Byron D. Super joined the staff of the Minneapolis office of Cereal Byproducts Co. Sept. 20. From the office at 814 Flour Exchange he will perform a complete brokerage function and service customers served by the Minneapolis branch.

Mr. Super is described by W. F. Becker, Jr., president of the brokerage chain in Chicago, as well-qualified, with a broad background in the brokerage of feed ingredients. He formerly managed the Cereal office in Omaha from 1942 to 1950, and has had his own brokerage business in that city since that time.

Canada Hog Numbers Show Sharp Increase

WINNIPEG — Number of hogs on Canadian farms (excluding Newfoundland) Sept. 1 was 6,849,000, an increase of 29% over last year's corresponding total of 5,293,000, according to the Dominion Bureau of Statistics. Estimates were larger for both eastern and western Canada, the former rising 25% to 3,414,000 from 2,729,000 and the latter 34% to 3,435,000 from 2,564,000.

From the bureau's June 1 survey, estimated farrowings for June 1 to Nov. 1, were placed at 660,000, or 40% more than a year earlier. This figure was confirmed by the Sept. 1 survey, with a slight shift to a 36% increase in the East versus the estimated 35%, and to 46% in the West versus 47%.

The number of litters (farrowings from June 1 to Aug. 31) increased 32% to 337,000 from 255,000 a year ago, the eastern total rising 28% to 184,000 from 144,000 and the western total 37% to 153,000 from 112,000. The increase in farrowings is expected to continue, as fall litters (September-November farrowings) are expected to reach 323,000, up 50% from last year's comparable total of 215,000, with increases occurring in all provinces.

Pacific Northwest Corn Competes with Midwest

PORTLAND, ORE. — Oregon and Washington corn producers are now competing with midwest producers for feed trade interests in their product.

It has only been during the past year or so that there has been any Pacific Northwest corn offered, since most of it was fed on the farm.

The USDA Market News Service at Portland reports that the 1958 Oregon and Washington feed corn crop is estimated at nearly 8 million bushels compared with 6 million in 1957 and the 10-year average of 3 million

Lower Egg, Broiler Prices Foreseen

COLUMBUS, OHIO — Egg producers probably will receive 3 to 5¢ doz. less for their eggs late this year and early next than they did a year ago, and broiler growers also can expect prices to run below those of last year.

Turkey producers can expect little change in the general price level before the holidays.

These predictions were made recently by Wallace Barr, agricultural economist at Ohio State University, in a forecast of the outlook for poultry producers in late 1958 and early 1959.

Mr. Barr estimates that the egg production in the latter part of 1958 and early 1959 probably will be about 5% over that of the same months a year earlier. Considering the likely egg production and outlook, he said, it appears that low prices in the winter and spring of 1959 will discourage some chick producers, particularly those who buy in the traditional months of March, April and May. This could mean stronger egg prices in the fall and winter of 1959-60. He sees 1959 as a good year to raise pullets.

Mr. Barr said indications point to broiler replacements for the rest of 1958 substantially above year-ago levels, with some weakening in live broiler prices. On the basis of four lots produced each year, broilers marketed in February, May, August and October might provide the greatest income possibilities for 1959, he believes.

Turkey producers shouldn't wait too long to market birds this fall, he advised. A price increase, such as took place last December, isn't likely this year. He doesn't expect much change in the general turkey price situation within the next couple of months. There may be some seasonal shifts, however, he said, such as lower prices for heavy toms as the new crop of this class of birds becomes more available. Also, there may be some weakening in turkey prices near or after the holidays, since June and July poult replacement on farms was 4% and 33%, respectively, higher than comparable months the previous year.

G.L.F. Plans Annual Stockholders Meeting

ITHACA, N.Y.—Seven directors of Cooperative G.L.F. Exchange, Inc., Ithaca, have been nominated for reelection at the 38th stockholders' annual meeting in Syracuse, N.Y., Oct. 23-24.

More than 3,000 farmers, representing 115,000 farmer-stockholders in 551 communities in New York, New Jersey and northern Pennsylvania are expected to attend the meeting.

More than 40 exhibits, showing commodities and services of the farm cooperative, will be assembled in a G.L.F. farm show covering an entire floor of the Onondaga County War Memorial.

Latest techniques used in marketing turkeys, beans and other products produced by G.L.F. stockholders will be featured in an exhibit showing the way farmers can work together to produce food items that meet the wants and needs of consumers, G.L.F. officials said. The G.L.F. "5-Star Forage Plan" and improved feeds also will be featured.

In addition to the farm show, members will hear reports on volume and earnings during the last fiscal year, and predictions for the coming year.

Directors nominated for reelection to two-year terms include Harold A. Giles, Union Springs, N.Y.; Orrin F. Riss, Lowville, N.Y.; Wallace H. Rich, Hobart, N.Y.; Ralph L. Culver, Laceyville, Pa.; Henry W. Bibus, Jr., Wrightstown, N.J.; Earl B. Clark, North Norwich, N.Y., and Morris T. Johnson, Batavia, N.Y.

Varied Subjects To Highlight Nebraska Meet

LINCOLN, NEB. — Topics ranging from "The Future of the Feed Industry" to tranquilizers will be discussed at the annual Feed and Nutrition Conference Oct. 30 at the University of Nebraska College of Agriculture, it was announced.

This year for the first time, the conference is being held in conjunction with Rooters Day, Oct. 31, also on the agricultural college campus.

Dr. John L. Adams, chairman of the university's department of poultry husbandry and in charge of conference planning, said registration will begin at 9 a.m. Oct. 30.

Subject matter topics at the conference will include pelleted rations for ruminants; effect of mechanical drying on nutritive value of feeds; physiological factors which influence feed efficiency; integration in livestock and poultry production; the future of the feed industry; mechanization of livestock and poultry feeding; losses in stored silage and tranquilizers in poultry and livestock production.

A highlight of the morning program will be a panel discussion on the subject of integration in poultry and livestock production. Pro and con viewpoints will be thoroughly aired, Dr. Adams said.

An address on the "Future of the Feed Industry," by an industry representative, is expected to be of considerable interest to those in attendance, Dr. Adams said.

The conference annually attracts a large number of feed industry representatives, county extension agents and other agricultural leaders.

The conference is sponsored jointly by the College of Agriculture and the Nebraska Grain and Feed Dealers Assn. Howard Elm, association secretary, said the usual banquet the night prior to the conference will be held again this year, on Oct. 29. Site will be the Cornhusker Hotel in Lincoln.

The noon meal on Oct. 30 will consist of barbecued chicken, prepared by the university poultry department staff.

The Rooters Day program Oct. 31 will include a series of reports on Nebraska swine research. These include comparison of arsenicals and antibiotics for growing-finishing swine, effect of iron treatments on anemia in baby pigs, swine breeding projects on performance testing and multiple mating studies, and performance of disease-free swine in Nebraska; use of iodinated protein and thyroactive compounds in rations for sows, effect of drying high moisture corn at different temperatures on nutritive value, and supplementing corn and grain sorghum with enzymes for growing-finishing swine.

Output of Fish Meal, Scrap Drops in July

WASHINGTON — Production of fish meal and scrap in the U.S. and Alaska continued to run below last year's production during the month of July, according to a recent report by the Bureau of Commercial Fisheries.

The report showed July production of 43,000 tons, a drop of 19% from July, 1957. For the first seven months of 1958, production of meal and scrap amounted to 104,000 tons, a decline of 22,000 tons from the same period of last year.

Production of fish solubles during the month, however, showed a gain of 4% over July, 1957. The total was 40.7 million pounds during July. Homogenized-condensed fish produced during July totaled 6.6 million pounds —a drop of 35% compared with the same month of last year.

MARKETS

(Continued from page 2)

ers and manufacturers are coming in in greater volume and more interest is being displayed from a buying standpoint.

Uncertainty regarding a possible freight rate adjustment within the southeastern territory has held off some buying interest and this situation should be cleared up within the next few weeks.

South Central

Formula feed business was slower this week than last. Nearly all mixers noticed a turndown in sales although all express satisfaction with their volume. The reason most often advanced for the slower business is the competition of new crop feed grains. Also, many feeders are believed to be so busy with their soybean harvesting operations that they neglect to order their formula feed.

Mill running time ranges from four to five and one half days, with the average probably a skimpy five days. Few mills are able to build up order backlogs, and operating time is on a day to day basis.

A continued good hog and pig feed business provides the main outlet for the mills. Egg laying rations are in better demand but expansion in deliveries is moving much slower than anticipated. Dairy feeds have been draggy for weeks and little improvement is looked for as long as pastures continue in their present condition.

Ohio Valley

Heavy frosts last weekend throughout the upper Ohio Valley effectively broke the prolonged late summer hot spell, and was welcomed by area manufacturers and retailers of formula feeds as the beginning of another autumn and winter season of increased business activities.

While the frost damaged pasturage to only a limited extent, and was followed at midweek by somewhat warmer weather, it served as an incentive to farmers to stock up on required feeds, and boosted sales to even better levels than had been recorded during September and early October.

Area manufacturers believe, though, that the better market tone is but a forerunner of the volume to be expected as the holiday season draws nearer, and farmers speed the fattening of all types of farm animals to meet the excellent consumer demands now in prospect because of the passing of the recession.

Leading in sales volume this week were hog and poultry feeds, with egg and broiler pellets and mashes being in strong demand. Turkey feeds also were moving in good tonnages, and some slight pickup in cattle feeds was noted. While there may be some hesitancy in stocking up on formula feeds at this time, because of generally expected price declines, this has not been too evident in this area, it is indicated by the current excellent volume of business.

Virtually all area manufacturing plants are continuing their two-shift operations on a five-day basis, with some plants finding it necessary to maintain production on the seven-day schedules of a week earlier.

Central States

A slight slow-down in ordering was experienced by feed manufacturers during the week ending Oct. 8. Most of the reason, it is thought, lies in the adjustment to lower price levels occasioned by the appearance of new crop soybean oil meal.

Prices for this protein ingredient slid around $7 ton in this area during the period, resulting in lower prices for finished feeds. And, indications are that the movement has not run its course, since meal for deferred positions is lower still. So, it is normal that purchasing of needed supplies be deferred until it is thought the adjustment is complete.

On the whole, however, business is well sustained and feed manufacturers are pleased and looking forward to a continuation of satisfactory operations.

Pacific Northwest

A sharp cut in soybean meal quotations and further moderate declines in prices for meat and bone meal, wheat millfeeds, whole corn and milo featured last week's Pacific Northwest feedstuffs market trading.

Soybean meal values were adjusted $6 to $7 ton lower in a move to place them on a new crop basis while millfeeds sold $1 ton lower with locally-produced corn selling as much as $2 ton lower and milo 50¢ down from the previous week's close.

Prices for whole barley, suncured alfalfa meal and top grade alfalfa hay were $1 ton up.

A slow demand for meat and bone meal was reflected at Portland and Seattle by $2.50 ton lower listings.

Demand for most feed ingredients continued to rule on the moderate side with most orders confined to immediate and prompt shipment deliveries.

Offerings of principal ingredients were mostly adequate to plentiful as the reflection of large feedstuffs supplies for the current marketing period.

Sales of formula feeds continued to hold up with egg, broiler and turkey mashes setting the pace. Listings for name brand feeds showed little or no change for the week.

REBUILDS ELEVATOR

GRANGEVILLE, IDAHO — The Union Warehouse & Supply Co. will rebuild its grain elevator at Fenn, Idaho, it has announced. The elevator was destroyed by fire early in September. Plans call for completion before winter sets in.

INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

Abbott Laboratories 38, 39
Academic Press, Inc. .....
Aeroglide Corporation .....
Agricon, Inc. .....
Agri-Tech, Inc. .....
Agri-Tec Steel Corp. .....
Alabama Flour Mills .....
Albers Milling Co. .....
Albumina Supply Co., Inc.... 108
Allied Chemical Corporation, Nitrogen Division 34
Allied Mills, Inc. .....
Amburgo Co., Inc. 50
American Agri. Chemical Co.
American Cyanamid Co. 48, 49
American Dehydrators Assn...
American Elev. & Grain Div.
American Mill Serv. Co. 14
American Poultry & Hatchery Fed. .....
Anchor Serum Co. .....
Anderson Box Co. .....
Andersons, The 104
Anderson, V. D., Co. 39
Arbor Acres Farm 96
Archer-Daniels-Midland Co. ..
Arkansas Rice Growers Coop. Assn. .....
Arkell & Smiths .....
Armour & Co. 94
Armstrong, O. B., & Son ... 86
Aubrey Feed Mills .....

Babcock Poultry Farm, Inc. ..
Baker, H. J., & Bro. .....
Baker, J. T., Chem. Co. ....
Barnard & Leas Mfg. Co., Inc. 24
Baroid Division, National Lead Co. .....
Bartlett, C. O., & Snow Co... 52
Bayou Molasses .....
Barton Salt Co., The .....
Bates Grain Co. .....
Baughman Mfg. Co., Inc. ...
Baxter, A. E., Engineering Co.
Beardstown Mills .....
Bemis Bro. Bag Co. .....
Berg, Paul 89
Bigelow Sales Co. 121
Bingman Lab., Inc. 15
Black, Sivalls & Bryson, Inc. .
Blatchford Calf Meal Co. ... 76
Blomfield-Swanson 38
Borden Company 72
Bosworth Commission Co. ... 93
Bowman Feed Prod. Inc. 93
Bradley & Baker .....
Brewers Yeast Council, Inc...
Brower Manufacturing Co. ... 95
Brown, Fred G., Puiv. Co. ..
Bruce Milling Co. 117
Burlap Council, The .....
Burrell, James H., & Co., Inc.
Burrows Equipment Co. 117
Burrus Feed Mills .....
Butler Chemical Co. 85
Butler Mfg. Co. 96

C-K Processing Co. .....
Calcium Carbonate Co. 118
California Pellet Mill Co. .. 74
Capie, A. B., Co. .....
Carey Grain Corp. .....
Cargill, Inc. 101
Carson Food Co. .....
Champion Portable Mill Co...
Chantland Mfg. Co. .....
Chase Bag Co. 46
Checkerboard Grain Co. .....
Chemo Puro Mfg. Corp. .....
Citrus Processors Assn. .....
Cleveland Vibrator Co., The..
Clinton Corn Processing Co... 95
Clofine, Herbert K. .....
Colby Milling, Inc. .....
Collier Livestock-Feeder Co...
Colonial Poultry Farms .....
Columbia Phosphate Co. 33
Columbia Quarry Co. 74
Columbian Steel Tank Co. ...
Commercial Solvents Corp. 12, 13
Consolidated Blenders, Inc. .. 121
Consumers Soybean Mills ....
Continental Grain Co. 121
Corn Products Sales Co. .....
Coronet Phosphate Co. .....
Crete Mills .....
Cromwell Paper Co. .....
Crown Zellerbach Corp. .....

D. C. A. & Co. .....
Daffin Mfg. Co. 92
Dannen Mills, Inc. 90
Davis, H. C., Sons' Mfg. Co.
Dawe's Laboratories, Inc...9, 126
Day Company, The .....
Daycom, Inc. 105
Delaware Poultry Laboratories 95
Devold, Peder, Oil Co. 117
Diamond V Mills, Inc. 108
Distillation Products Industries 100
Distillers Feed Research Council .....
Doane Agricultural Serv., Inc.
Doane Feed Products Co. 112
Dorsey Trailers .....
Doty Laboratories .....
Douglas Chemical Co. .....
Duplex Mill & Mfg. Co. 27
Du Pont de Nemours & Co., Inc., E. I. 79

Early & Daniel Co. .....
Eastman Chemical Prod., Inc.
Ehrsam, J. B., & Sons Mfg. Co., The .....
Elam Grain Co. 109
Entoleter Division, Safety Industries, Inc. .....
Erlez Mfg. Co. .....
Eschenheimer, Rudy, Co. 80
Eshelman, John W., & Sons .
Ewing, Ray, Co. 23

Farm Journal .....
Farmers Friend 122
Farmers Mutual Hail Ins. Co. of Iowa .....
Feed Service Corp. .....
Fischbein, Dave, Co. .....
Flavor Corp. of America...3, 102
Flour Mills of America .....
Food Mach. & Chem. Corp. ..
Forster Mfg. Co. 19
Fox Co. 83
Fox Valley Milk Feeds, Inc. .
Fruen Milling Co. 7

Gaddis Bros. Mfg. Co. .....
Geerlings Feed Mills 17
Glidden Co., The .....
Gold Kist Peanut Growers ..
Gorton-Pew Fisheries 122
Grace Chemical Co. .....
Grain Processing Corp. 105
Grand River Chem. .....
Griffith Labs., Inc. 102
Gump, B. F., Co. .....

Hallet & Carey Co. .....
Hand, Peter, Foundation 15
Hardy, H. E., & Co. 93
Hardy Salt Co. .....
Harris-Crane, Inc. .....
Harshaw Chemical Co. .....
Hawthorne Co. .....
Hayes and Stolz .....
Haynie Mennaden Prod., Inc.
Heard-Kinard-Smith, Inc. ....
Heck, Edward J., & Sons Co.
Heil Co., The .....
Helm Manufacturing Co. 104
Henderson Mfg. Co. .....
Henke Mfg. Co. .....
Hercules Powder Co. .....
Hess & Clark, Inc. 57, 77
Heterochemical Corp. 89
Highway Equipment Co. 14
Hilltop Laboratories 35
Hoffmann-La Roche, Inc. ....
Hoffman-Taff, Inc. 105
Hogenson Const. Co. 108
Hogg, N. D., Ltd. .....
Holt Products Co. .....
Homer Mfg. Co., Inc., The .
Honeggers' & Co. 52
Honeymead Products Co. 24
Hot Spot Detector .....
Howes, S., Co., Inc. .....
Hubbard Milling Co. 40
Hudson Pulp & Paper .....
Hubbell, Charles H. .....
HyLine Poultry Farms 111

Ibberson, T. E., Co. .....
Illinois Soy Products Co. 108
Indian Jute Mills Assn. .....
Industrial Commodity Corp...
Industrial Molasses Corp. ...
International Machinery Dev. Corp. .....
International Minerals & Chemical Corp. 53
International Paper Co. 35
International Salt Co., Inc... 91
Interstate Chemical Products.
Iowa Limestone Co. 40
Iowa Portable Mill Co. 80

Jackson, Gilbert, Co., Inc. .. 89
Jacobson Machine Works ... 113
James Mfg. Co. .....
Jersee Co. 73
Johns-Manville .....
Jones-Hettelsater Const. Co. .

Kansas Soya Prod. Co., Inc... 22
Kees & Company 93
Kellogg, Spencer, & Sons, Inc.
Kem Mfg. Co. 83
Kemp, C. M., Mfg. Co. ....
Kent Feeds .....
Kent, Percy, Bag Co., Inc.... 108
Key Alfalfa Dehydrators ....
Keystone Steel & Wire Co. ..
Kilby Steel Co. .....
Kindstrom-Schmoll Co. 82
Koelsch, Charles J., Grain Co.
Koppers Co., Inc. .....
Kraft Bag Corp. .....
Kraft Foods Co. 46, 47, 54
Kuss, R. L., & Co., Inc. .....

Laboratory Construction Co. .
LaBudde Feed & Grain Co... 96
Land O'Lakes Creameries, Inc. 117
Landers Mill Mfg. Co. .....
Lathrop's Hatchery, Inc. ....
Lauhoff Grain Co. .....
Leach Mfg. Co. .....
Leftwich, J. H., & Co., Inc...
LeGear, Dr., Inc. .....
Lennox Industries, Inc. .....
Levens Mfg. Co. 73
Lilly, Eli, & Co. 87
Lima Armature Works .....
Limestone Products Corp. of America 34
Linck, O. E., Co., Inc. .....
Loncala Phosphate Co. 96
Longhorn Eng. Co. .....

M-G-R Feed Co., Inc. .....
McCabe Grain Co., Ltd. ....
McCall, Tom, & Associates, Inc. .....
McClelland, M. A. .....
Magnus, Mabee & Reynard..
Maney Bros. Mill & Elev. Co. 4, 122
Marco Chemical Co. 54
Martenis, C. J., Grain Co...
Martin, Theo. W., & Son ...
Mathews Co. .....
Mayo Shell Corp. 102
Melos Mfg. Co. .....
Merchants Chemical Co., Inc. 83
Merck & Co.....25, 26, 30, 31, 55, 98, 99
Mid-Continent Grain Co. 78
Midland Western 121
Midwest Alfalfa Co. 80
Mid-West Business Exchange.. 120
Midwest Dried Milk Co. .....
Milbrew Co. 82
Mill & Elevator Co. .....
Miller Manufacturing Co. ... 74
Miller, Mel, & Co., Inc. ....
Miller Publishing Co., The ... 110
Milligan & Son .....
Minneapolis Sewing Mach. Co.
Minnesota Linseed Oil Co. .. 84
Minnesota Specialty Co., Inc. 102
Monsanto Chemical Co. .....
Morse Boulger Destructor Co.
Motomco, Inc. .....
Morton Salt Co. 71
Murphy Products Co. 82
Myers-Sherman Co. 76

Nagel, Herman, Co. 94
Natl. Alfalfa Dehydrating & Mig. Co. .....
Natl. Cottonseed Prod. Assn., Inc. .....
Natt. Distillers Prod. Co. ....
National Feed Ingred. Assn...
National Lead Co. 114
National Molasses Co. .....
National Oats Co. .....
National Renderers Assn. 97
National Turkey Federation Underwriters .....
National Vitamin Products Co.
Nellis Feed Co. 84
New Century Co., The .....
New England By-Prod. Corp.. 122
Nichols, Incorporated .....
Nootbaar, H. Y., & Co. 101
Nopco Chemical Co. 78
North American Mfg. Co. ....
North American Trading & Import Co. 115
North Carolina Granite Corp. 47
Northwest Brewers Yeast, Inc. 56
Nor-Vell, Inc. .....
Nutrena Mills, Inc. 101
Nutri-Lab Mixing Corp. .....

Oakes Mfg. Co. .....
Olavarria & Co., Inc. .....
Omega Machine Co., Div. of B-I-F Industries, Inc. ...
Oyster Shell Corp. 19
Oyster Shell Prod. Co. 90

Pabst Brewing Co. 20, 21
Paper-Calmenson & Co. .....
Park, Philip R., Inc. 32
Parks, J. P., Co. .....
Parrish & Heimbecker .....
Parrish, N. K. .....
Paxton Processing Co. 121
Pay Way Feed Mills, Inc. ...
Peavey, F. H., & Co. 35
Peerless Equip. Co., Inc. ...
Penick, S. B., & Co. .....
Permco Mfg. Co. .....
Pfizer, Chas., & Co....43, 44, 45
Phelps Dodgen Refining Corp.
Pillsbury Co., The 88
Pittsburgh Plate Glass Co. ..
Pless & Sheahan .....
Power Curve Conveyor Co. ..
Prater Pulverizer Co. 73
Pratt Labs., Inc. 18
Productive Acres Mfg. Co. .. 88
Publicker Industries, Inc. ...

Quaker Oats Co. 61
Quisenberry Mills .....

Ralston Purina Co. 75
Ranger Equipment Co. .....
Rapids Machinery Co. 84
Raymond Bag Corporation ...
Read, Gladwin A., Co. .....
Red River Alfalfa Co. 35
Red Star Yeast & Prod. Co. ..
Rees Blow Pipe Mfg. Co. ....
Reliance Feed Co. 96
Rhodia, Inc. .....
Richardson, James, & Sons ..
Richardson Scale Co. .....
Riley Feed Co. .....
Rion Crush Stone Corp. ....
Ripco, Inc. .....
River Rest Turkey Sales, Inc.
Robinson Conveyor Systems .
Rohloff Bros., Inc. .....
Rolfes Grain Aeration Cos. .. 33
Roskamp Huller Mfg. Co., Inc.
Rosner-Hixson Laboratories ..
Ross Machine & Milll Supply.. 106
Ruttger's Minnesota Lodges ..
Ryde & Co. 109

S. & H. Lab. 15
S & O Products .....
St. Regis Paper Co. 56
Safety Industries, Inc. .....
Salsbury's, Dr., Labs. 59-70
Save-Way Feed Mills .....
Scanlan, Ivan, & Co. 42
Schenley Distillers, Inc. ....
Schipke, Henry, & Assoc. ....
Schuster-Wise Gr. & Feed Co.
Schutte Pulverizer Co., Inc...
Scroggins Grain Co. 83
Seagram, Joseph E., & Sons, Inc. .....
Seco, Inc. .....
Sedberry, J. B., Inc. 86
Seedburo Equipment Co. ... 22
Service Bureau Corp. .....
Sheahan, Robert F. .....
Shell Chemical Co. .....
Shellbuilder Co. 106
Sievert, C. W., & Associates.
Simonsen Mfg. Co. .....
Small, The W. J., Co. 5
Smith, Edward E., & Co. ....
Soft Phosphate Research Inst.
Sohio Chemical Co. .....
Soluble Nutrients, Inc. .....
Southwest Mill Supply Co. .. 117
Sparks-Waters-Farnen, Inc. ..
Special Products, Inc. .....
Specifide, Inc. .....
Spencer Kellogg & Sons, Inc..
Springer Pub. Co. .....
Sprout, Waldron & Co., Inc.. 103
Squibb, E. R., & Sons .....
Stabilized Vitamins, Inc. ....
Staley, A. E., Mfg. Co. 114
Staley Milling Co. .....
Standard Brands, Inc. 60
Standard Feed & Fert., Inc...
Stauffer Chemical Co. .....
Stephens-Adamson Mfg. Co. .
Sterwin Chemicals Inc. 41
Stone Mountain Grit Co. 36, 37, 88, 89
Strong-Scott Mfg. Co. 101
Sudenga Industries .....
Sunset Feed & Grain Co. .....
Superior Feed Co. .....
Swanson, Carroll, Sales Co. 38, 50
Swift & Co. .....
Syntha Lab. .....

T. D. F. Company .....
Taste Engineering, Inc. 7
Texas Mill Equipment Co. ...
Thayer Scale Co. .....
Thomer Equipment Co. .....
Thompson Printing Co. .....
Ti-Co Industries .....
Tobias Enterprises 101
Toxite Laboratories .....
Truck Grain Blower Co. .....

Ultra-Life Laboratories, Inc... 42
Union Bag-Camp Paper Corp. 28, 29
Union Bag-Camp Paper Corp.
Union Special Machine Co. ..
U. S. Industrial Chem. Co. ..
Universal Hoist Co. .....
Upjohn Company, The .....

Van Camp Lab. .....
Van Dusen Harrington Co. .. 35
Vantress, Chas., Farms, Inc...
Van Waters & Rogers, Inc. ..
Vineland Laboratories, Inc. ..
Vitamins, Inc. 58
Vitaway, Inc. 107
Vitren Corp. .....
Vy Lactos Laboratories, Inc... 16

W-W Grinder Corporation .. 42
Wallace & Tiernan Inc. 109
Warren-Douglas Chemical Co. 96
Wells, Ralph, & Co. .....
Wenger Mixer Mfg. Co. 58
Wertz Feed Co. 56
Western Condensing Co. .....
Western Yeast Co. .....
West Virginia Pulp & Paper Co. .....
White Laboratories, Inc. ....
White Shell Corp. .....
Whitmoyer Laboratories, Inc.. 93
Whitten Co. .....
Wilhoit Laboratory 96
Wilson & Co., Inc. .....
Wilson, R. S., Co. 104
Wirthmore Feeds .....
Wisconsin Alumni Research Foundation 107
Woodington Elev. .....
Woodward & Dickerson, Inc... 81

Younglove Construction Co...
Young, John F., Co. .....

Zellers' Laboratories .....

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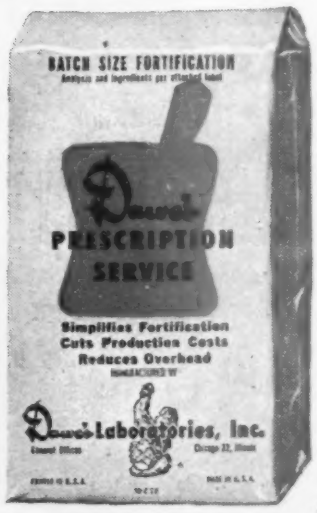

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